

# UNCLASSIFIED

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AUTHORITY
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AUTHORITY
ONR, per DTIC Form 55

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MC REPORT 011  
Volume 5

**ACOUSTIC ENVIRONMENTAL SCENARIOS  
AND  
PREDICTIONS FOR ASW**

**VOLUME 5  
AREA 2, SUMMER  
PREDICTIONS FOR PASSIVE SONAR**

**October 1972**

**LONG RANGE ACOUSTIC PROPAGATION PROJECT**



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**OCEAN SCIENCE PROGRAM  
MAURY CENTER FOR OCEAN SCIENCE  
Department of the Navy  
Washington, D.C.**



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Test and Evaluation; 27 JUN 1973. Other requests  
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Director, Long Range Acoustic Propagation Project (ONR Code 102-OS)

*ARLington, Va. 22217*

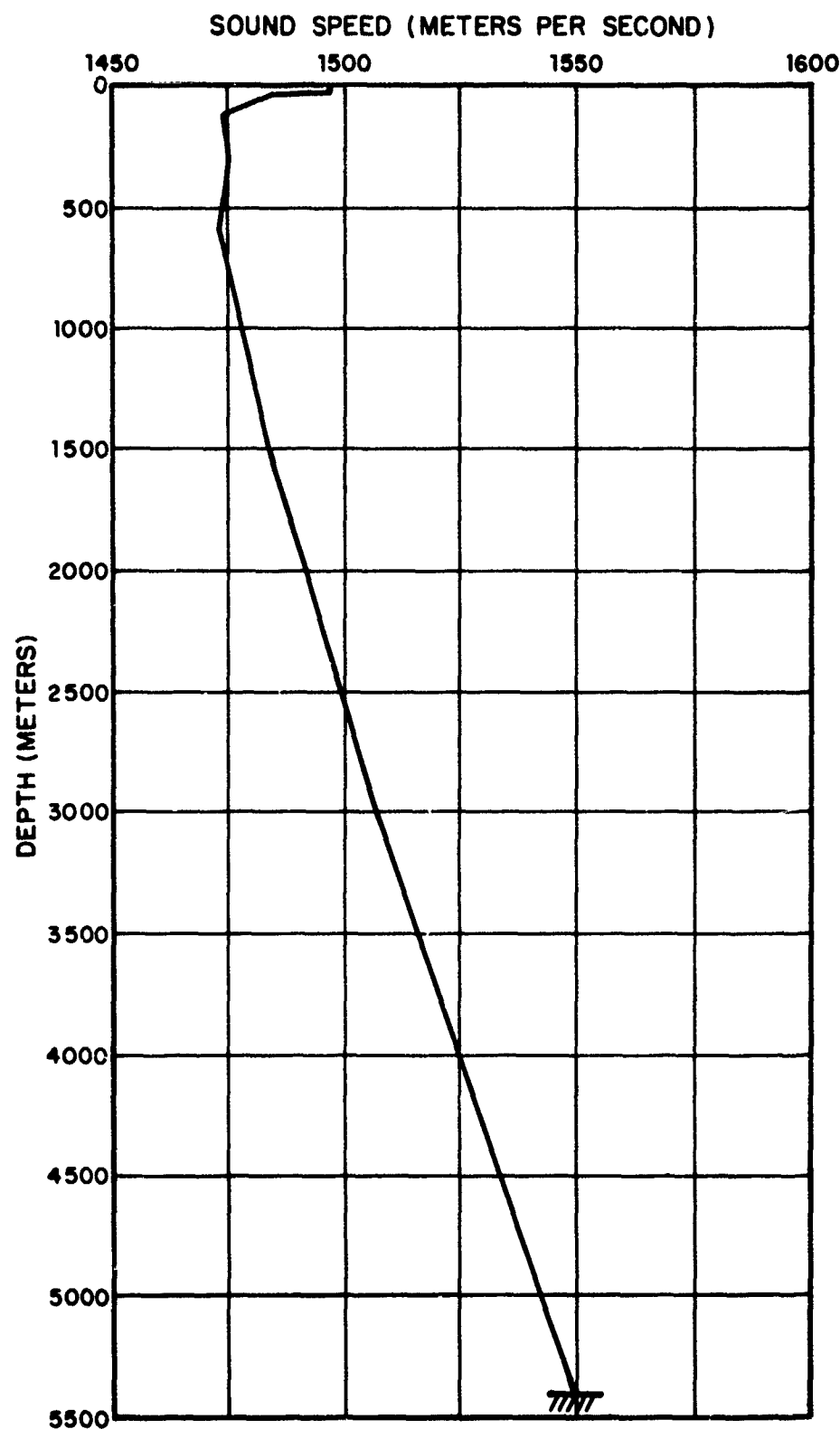
AD 911 221

ACOUSTIC ENVIRONMENTAL SCENARIOS AND PREDICTIONS  
FOR ASW

Volume V: Area 2 Summer  
PREDICTIONS FOR PASSIVE SONAR

Refer to Volume 1 of this report for an explanation of the  
plot format and descriptions of models and ocean areas.





**SOUND SPEED PROFILE  
AREA 2, SUMMER**

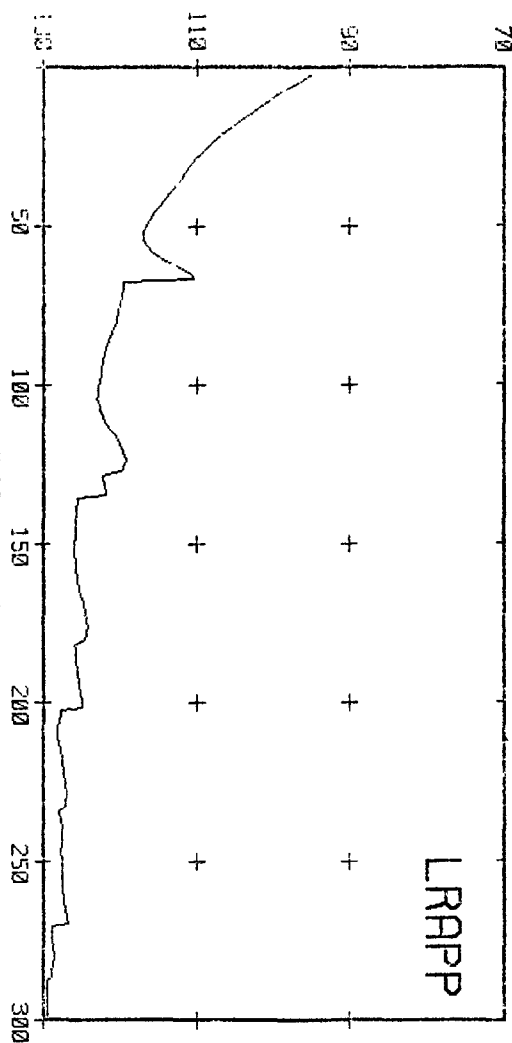
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FIGURE 2 SUMMER

S 20 R 60 F 10

1450 M/S 1500 1550

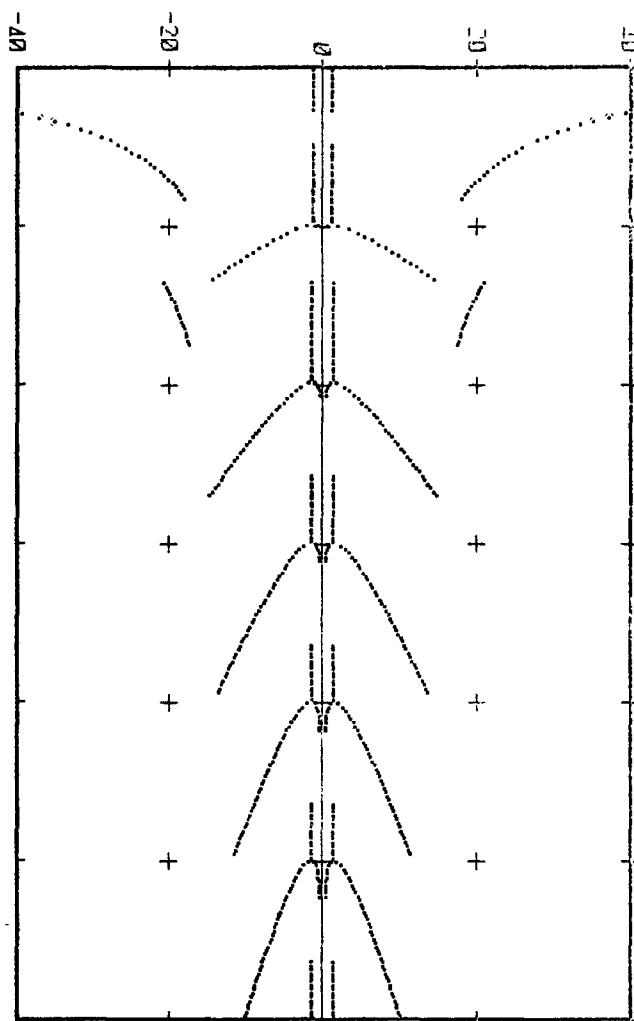
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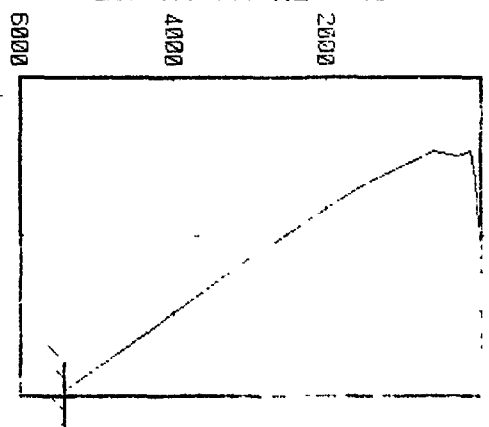
LRRAPP

RANGE (KIDS)

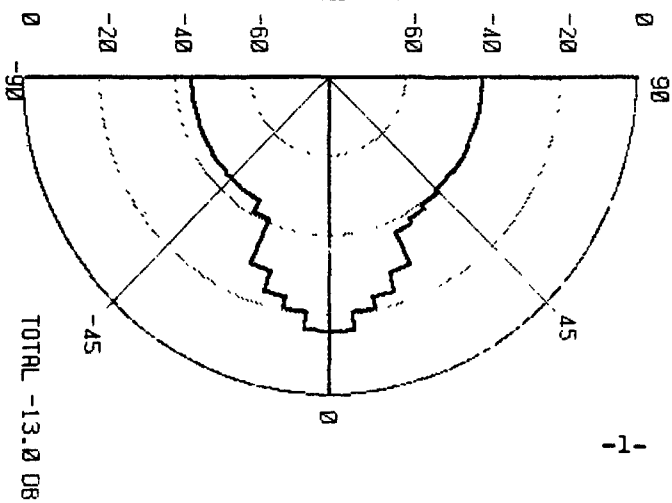
ARRIVAL ANGLE



DEPTH IN METERS

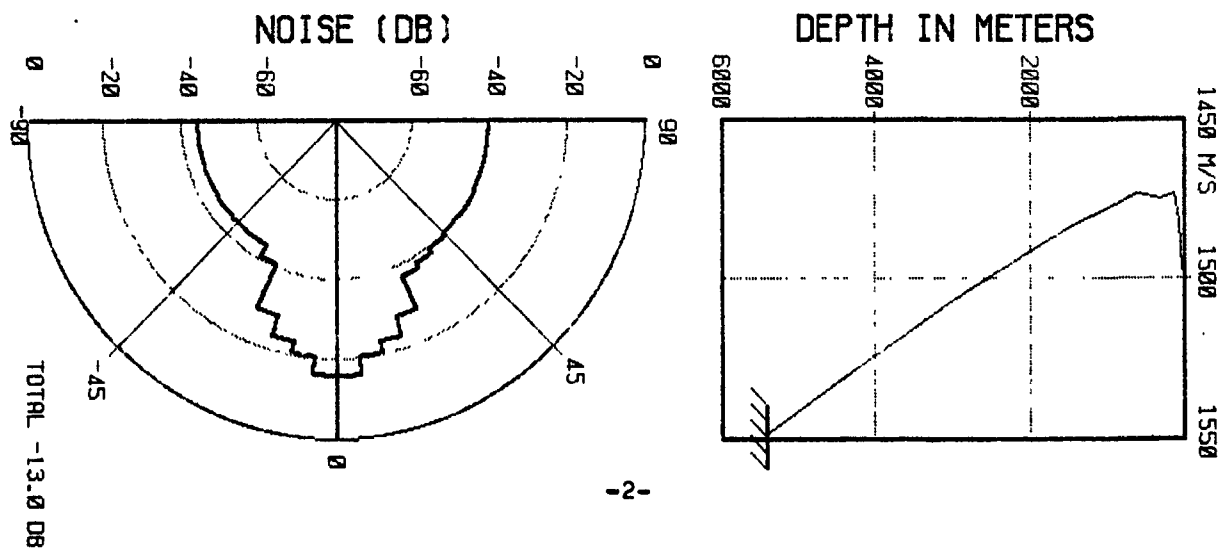
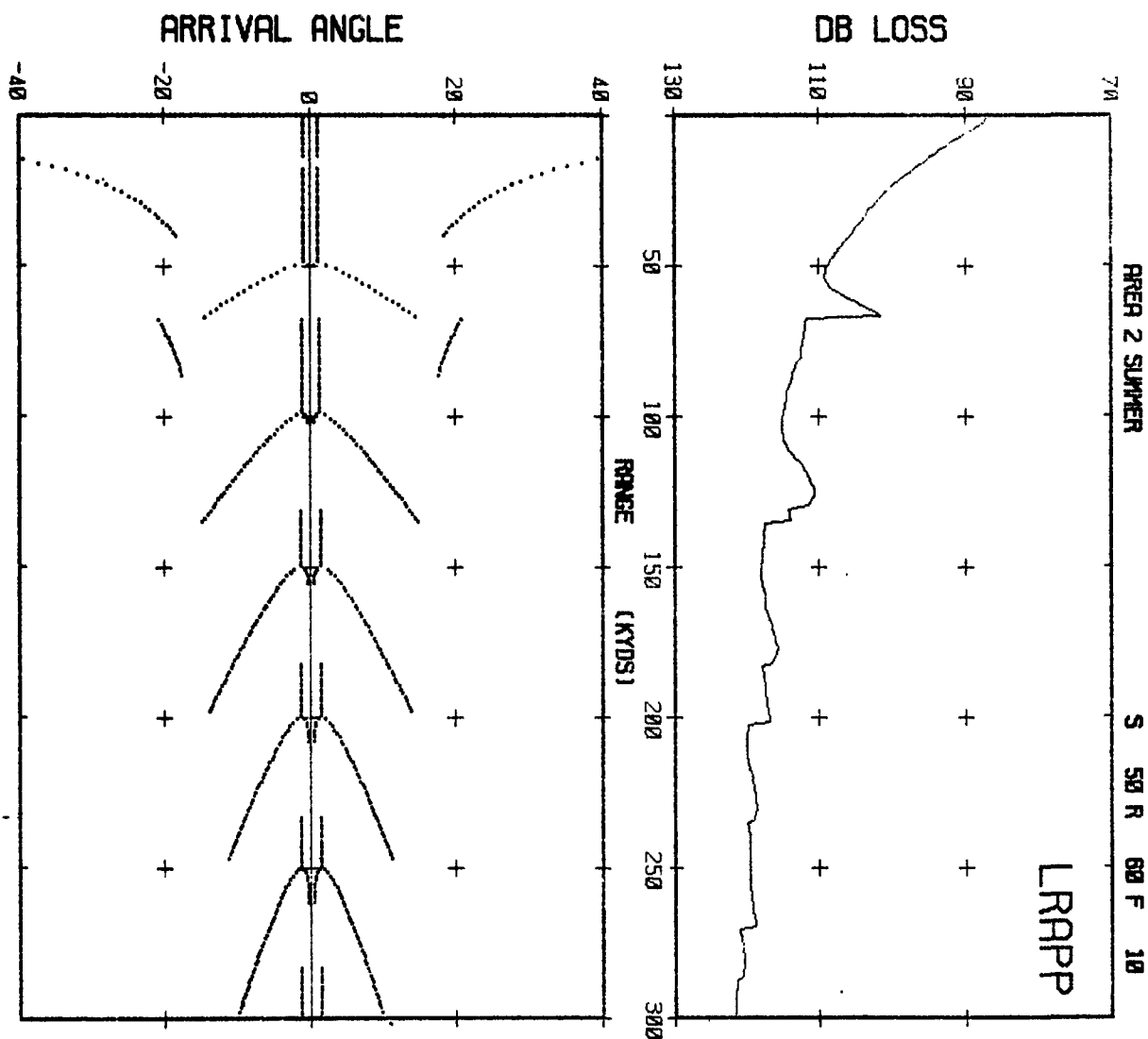


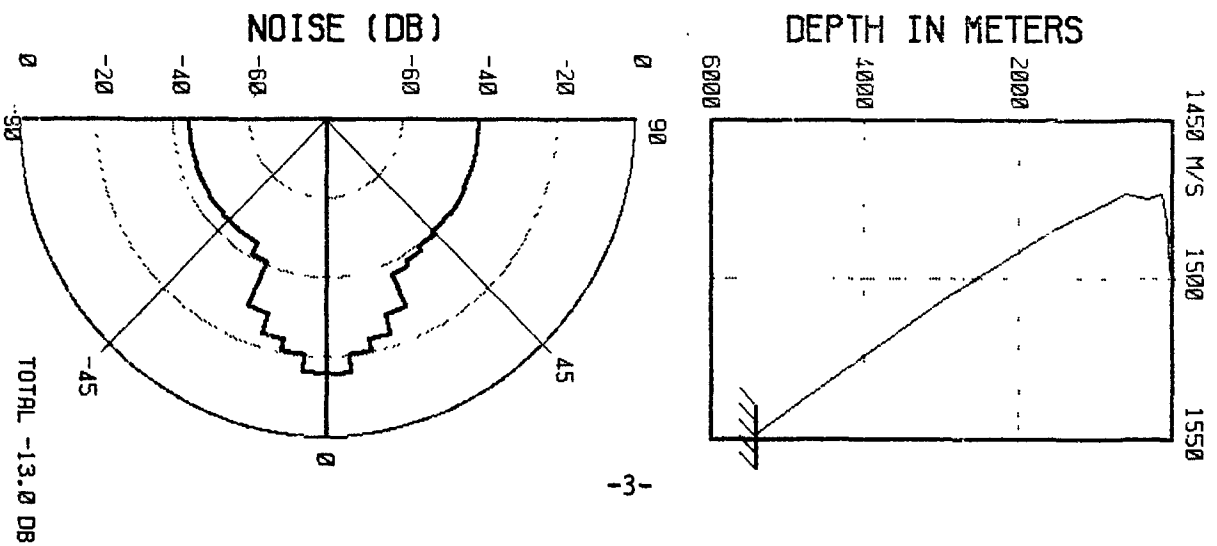
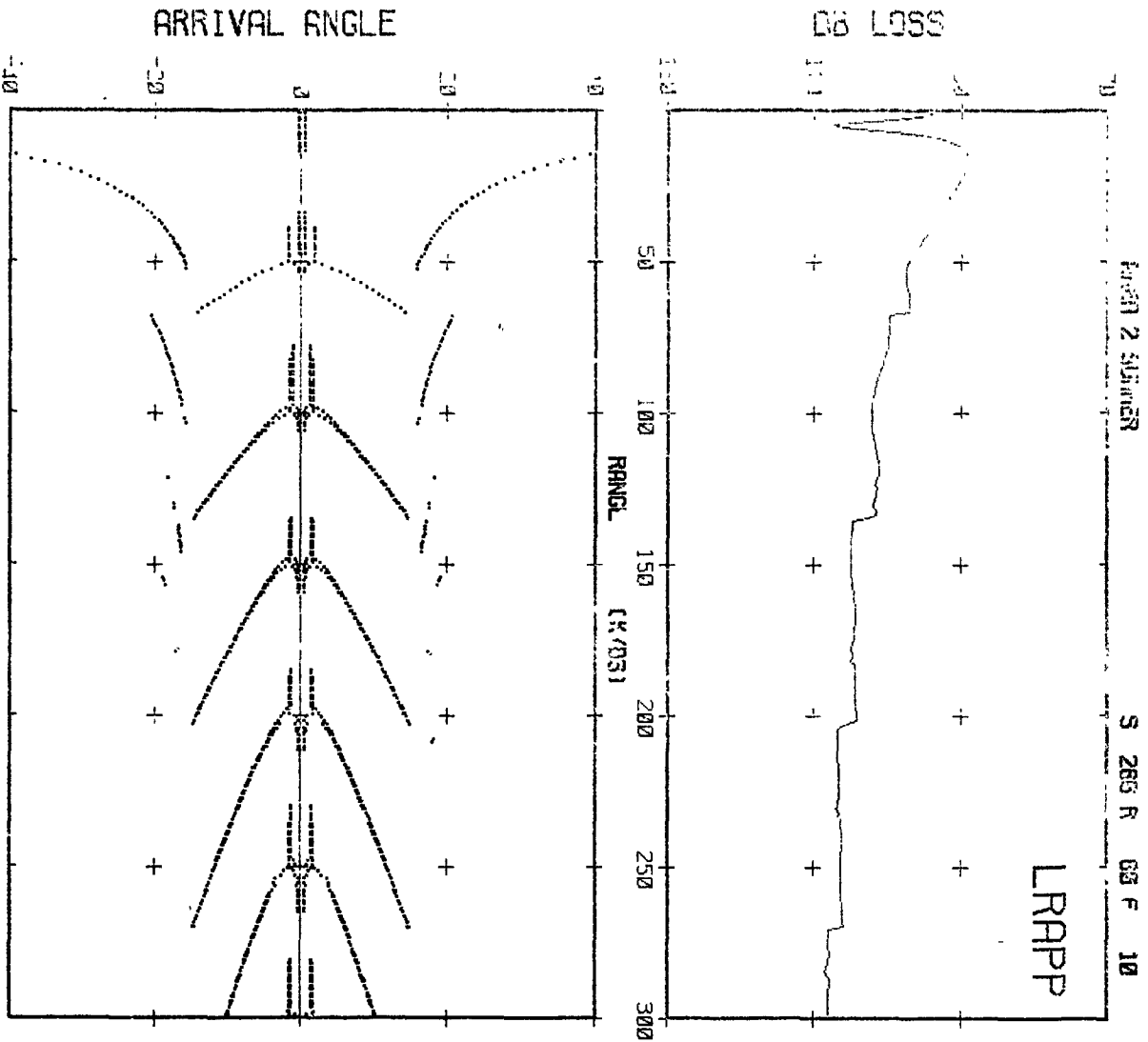
NOISE (DB)



-1-

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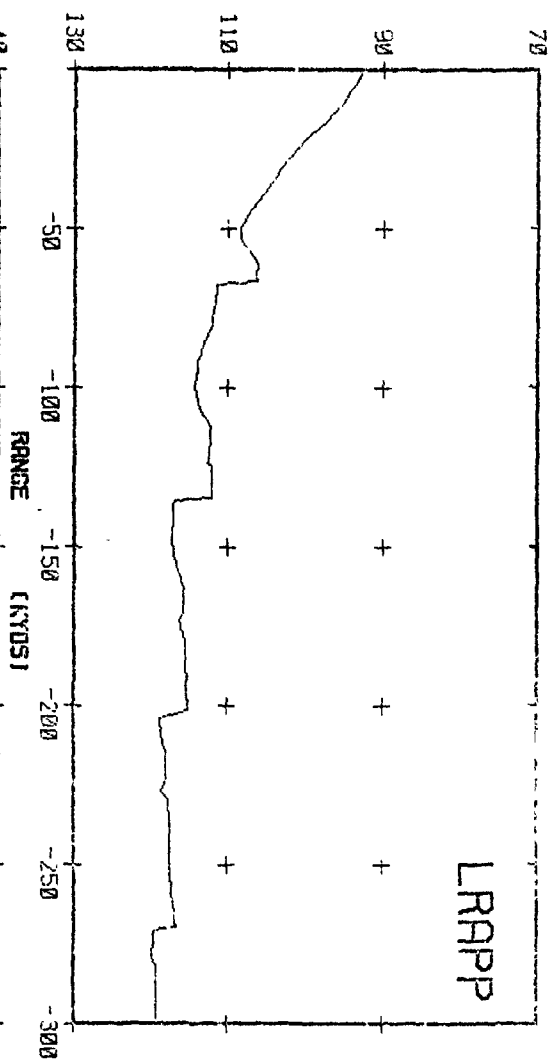


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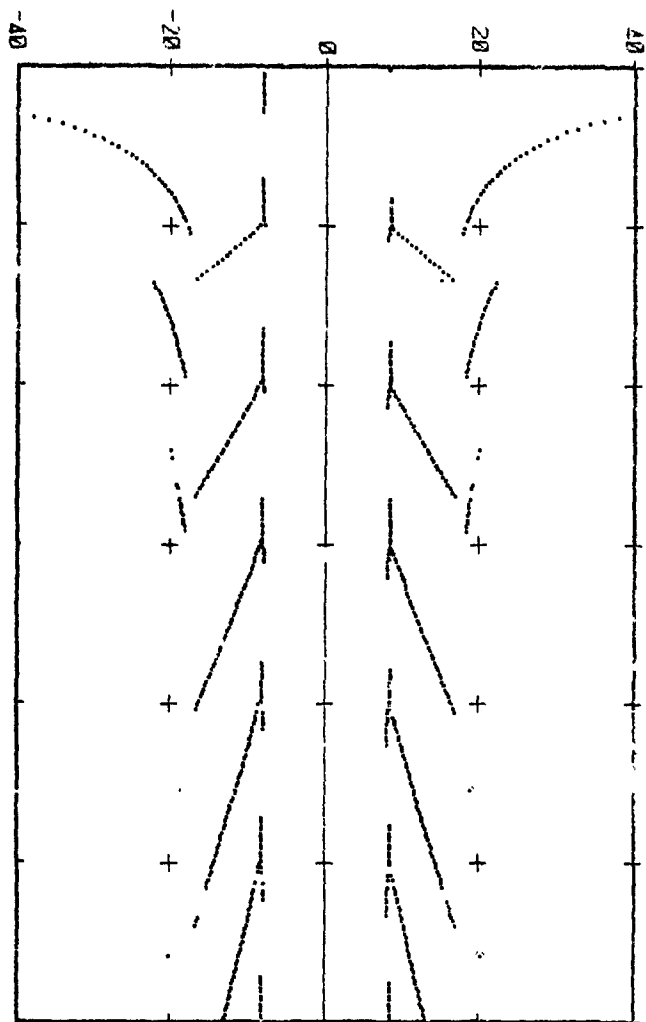
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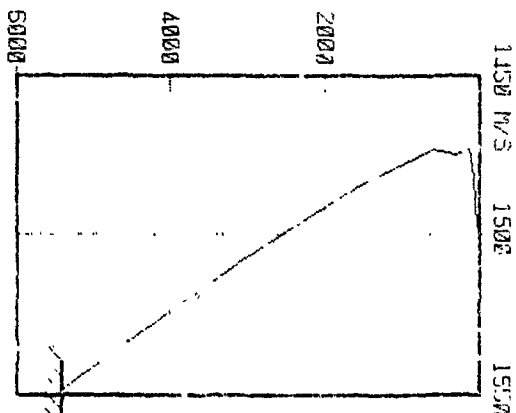
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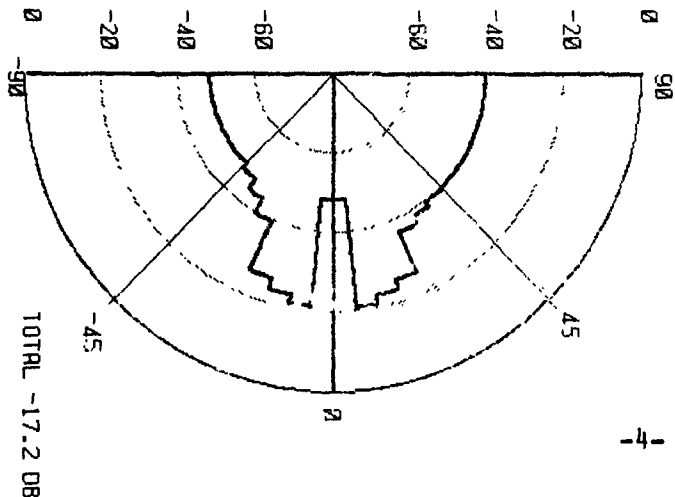
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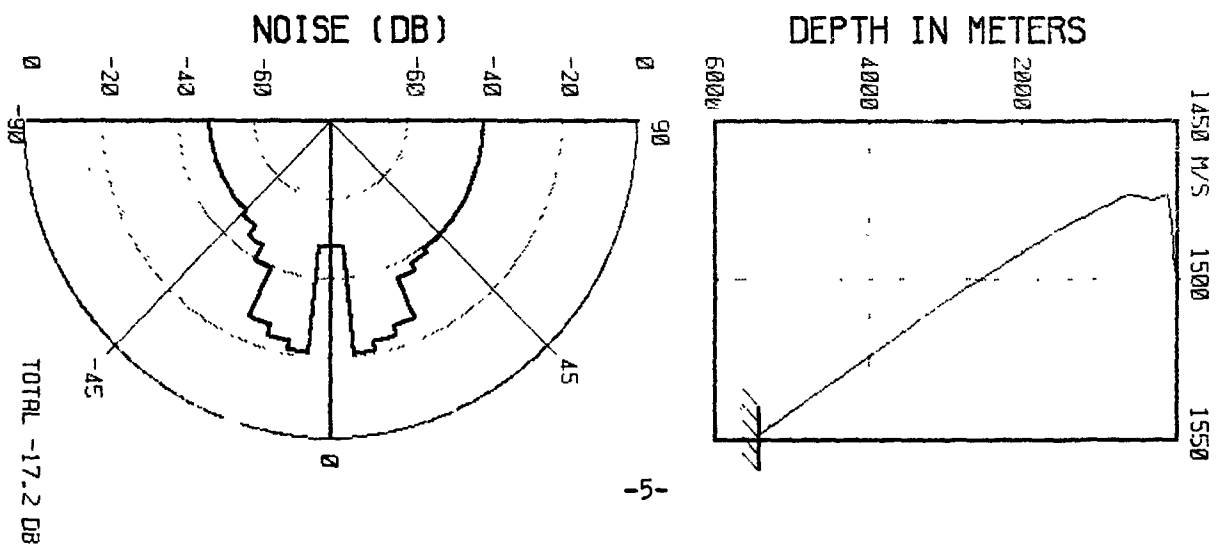
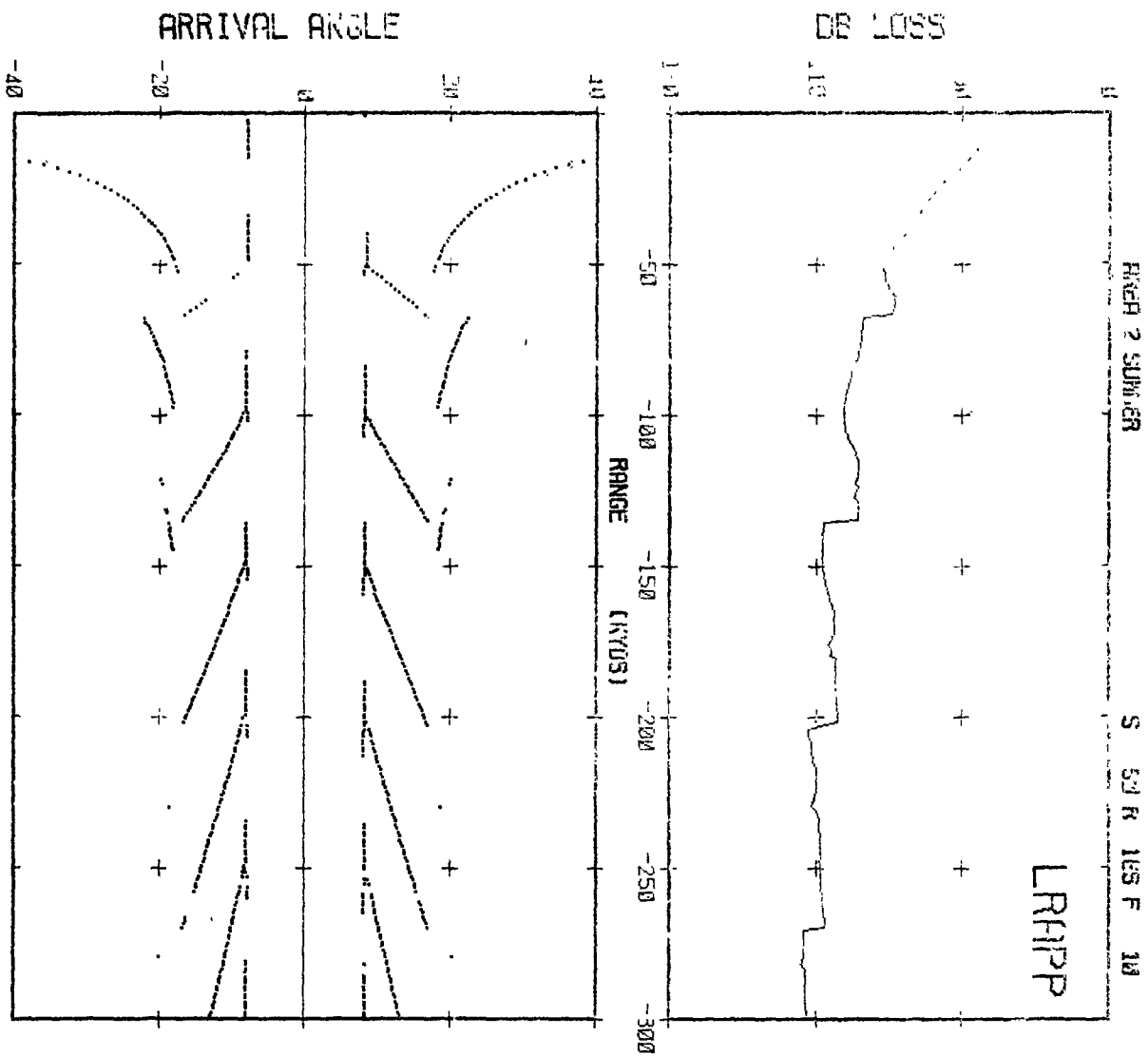


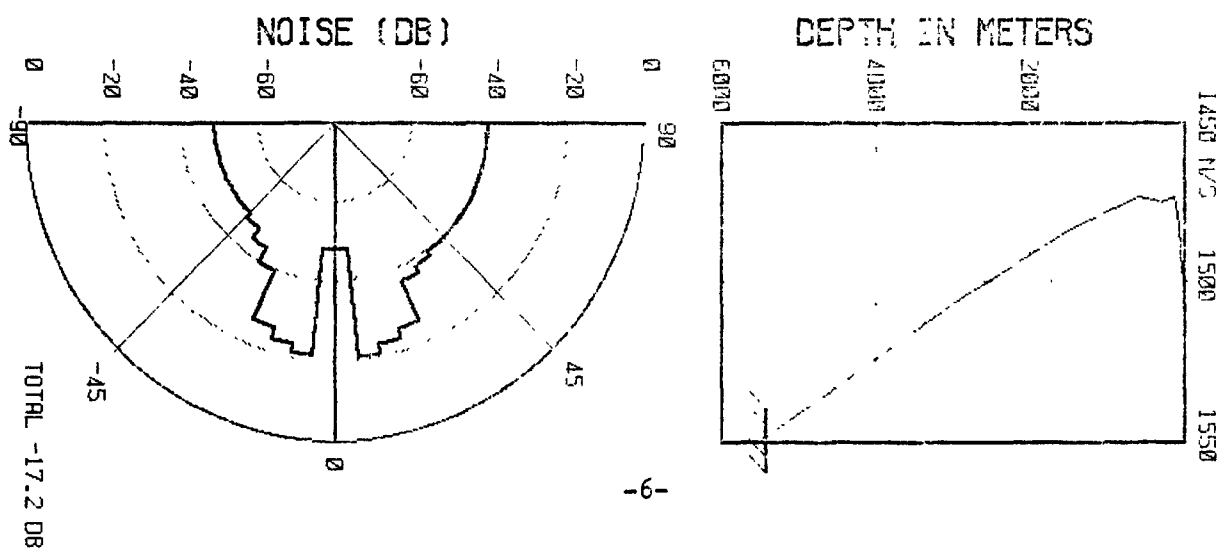
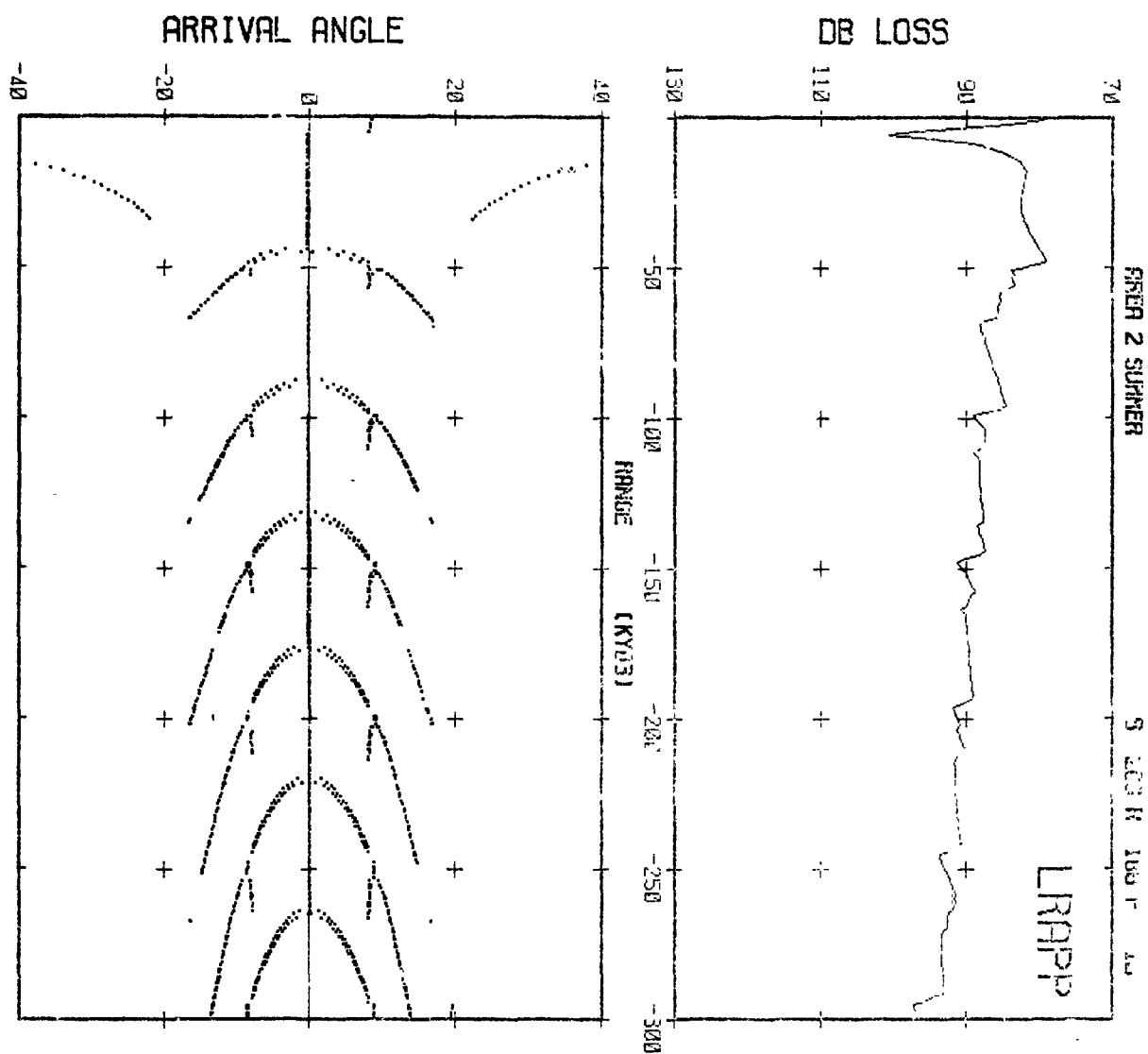
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NOISE (DB)





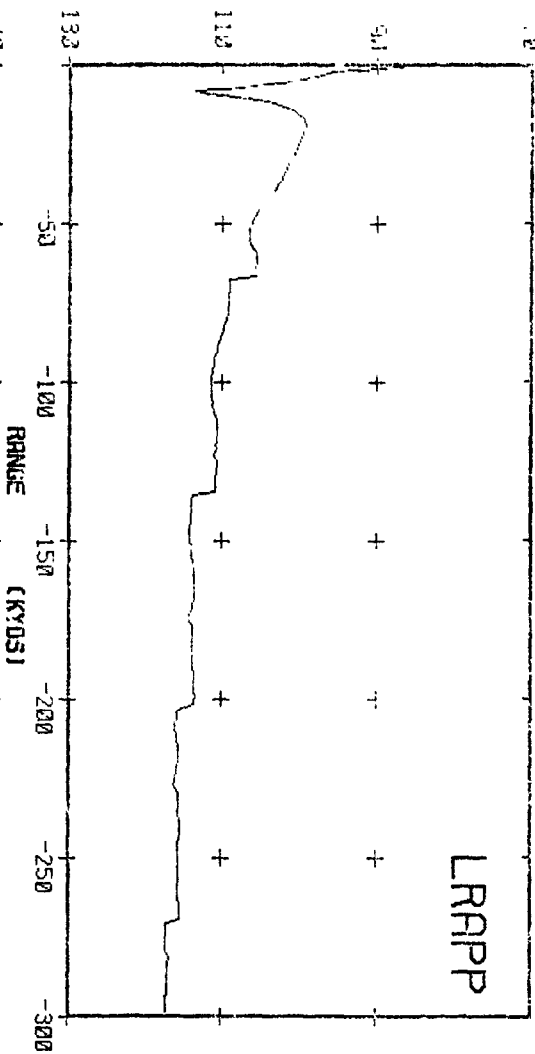


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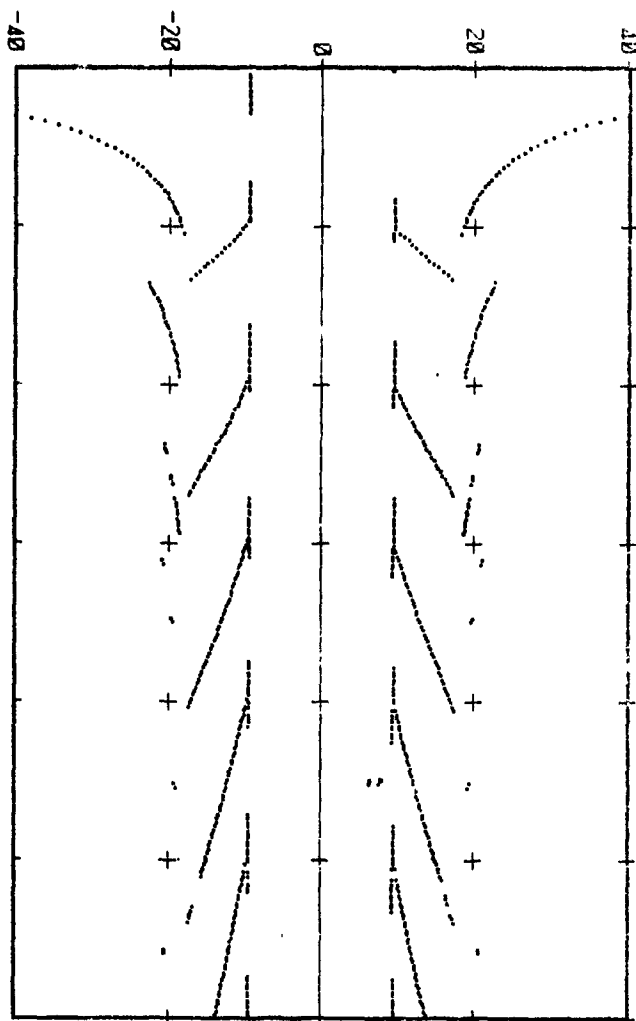
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1450 M/S 1500 1550

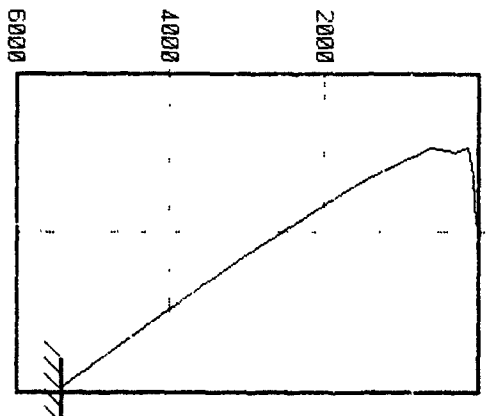
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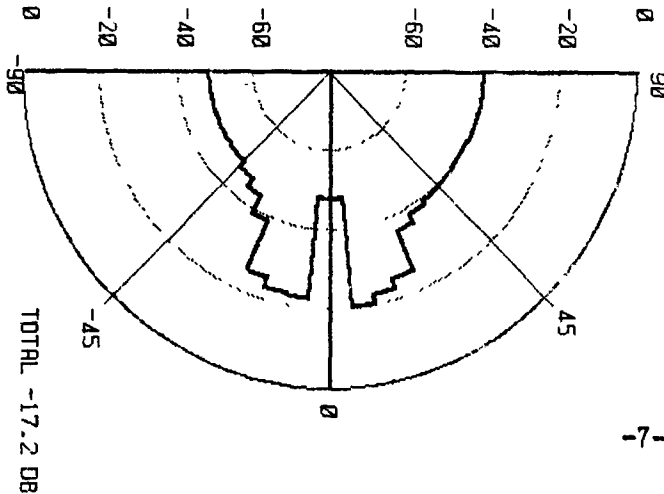
ARRIVAL ANGLE



DEPTH IN METERS



NOISE (DB)



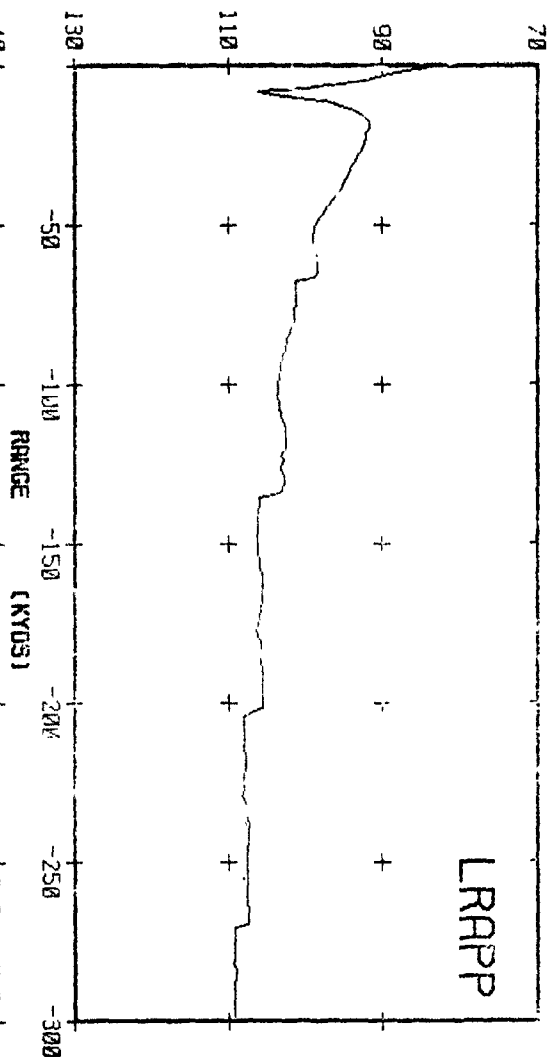


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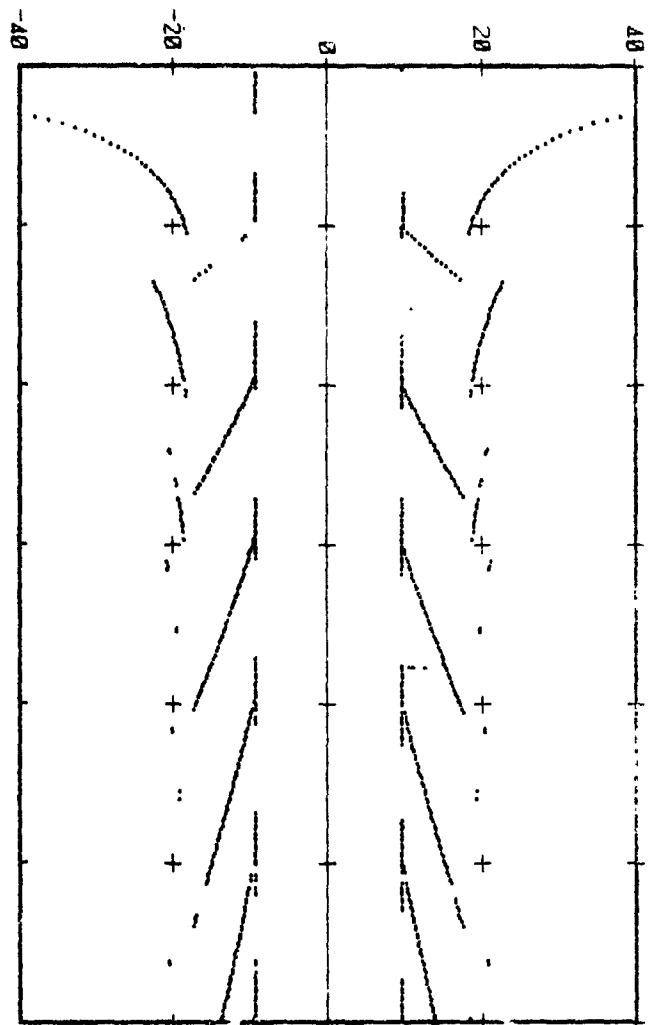
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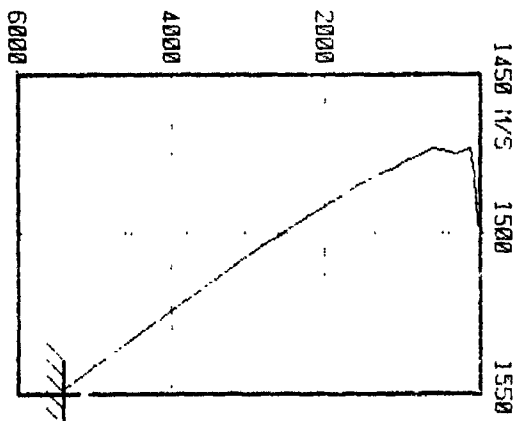
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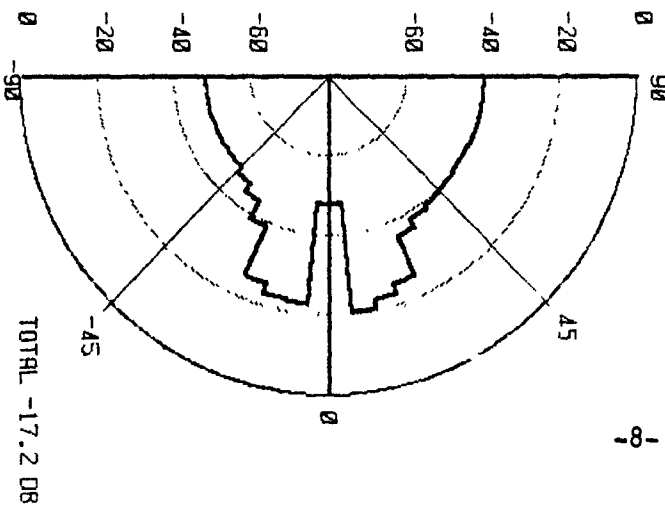
ARRIVAL ANGLE



DEPTH IN METERS



NOISE (DB)



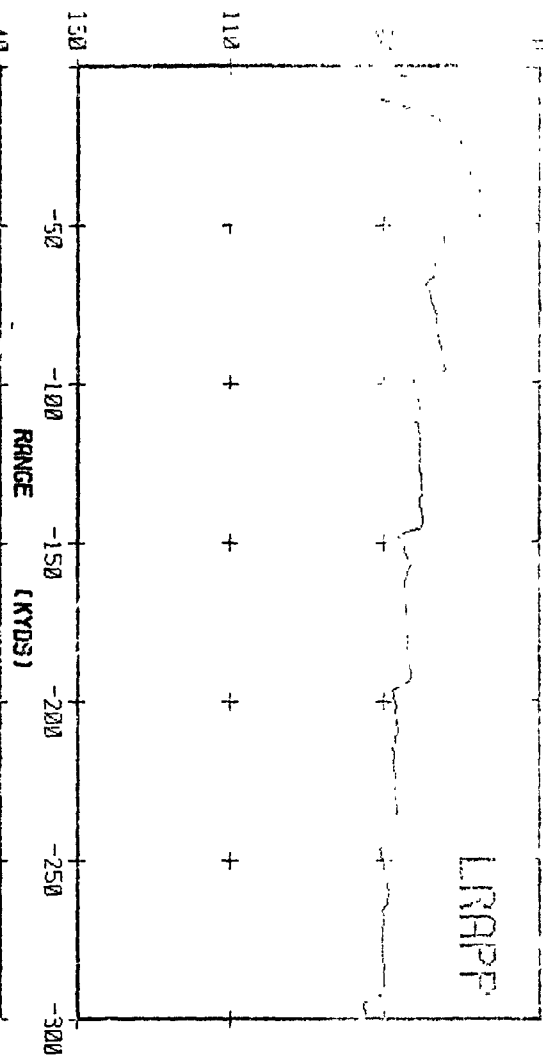
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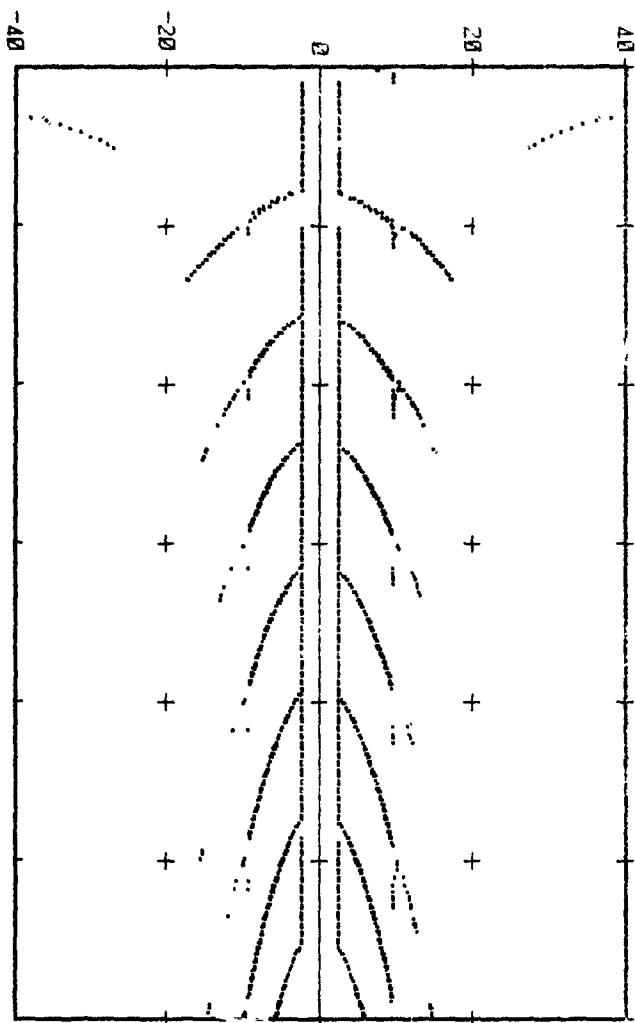
1450 M S 1500

1550

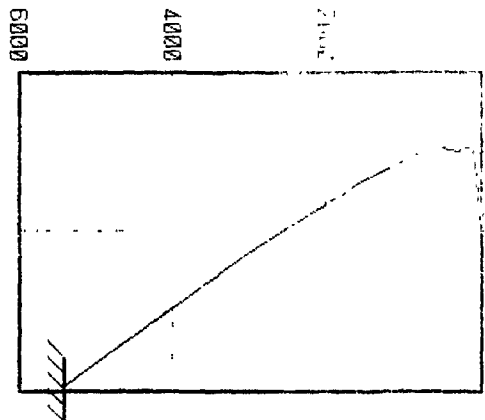
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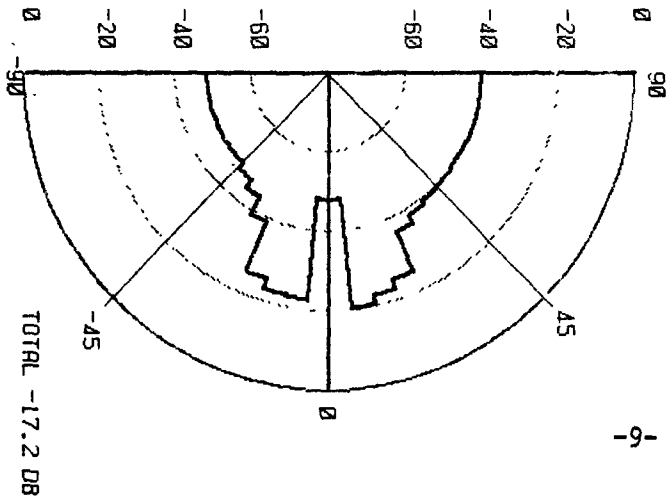
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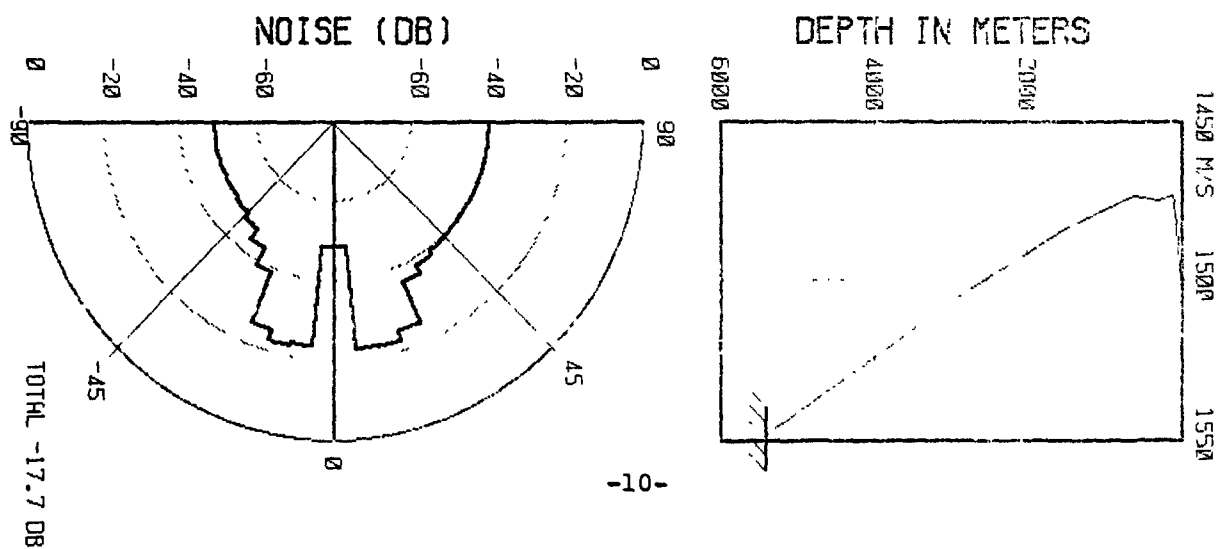
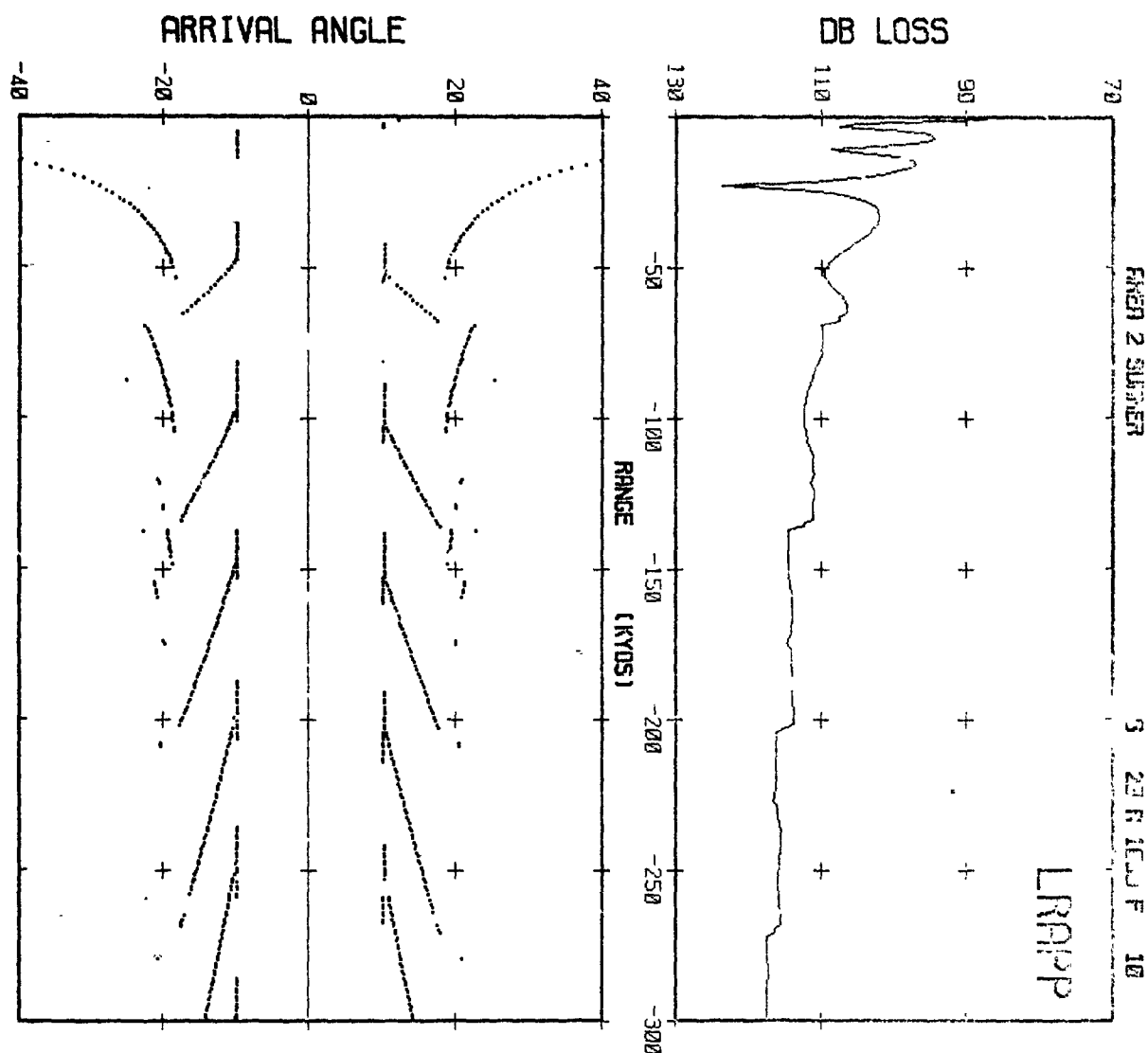


DEPTH IN METERS



NOISE (DB)



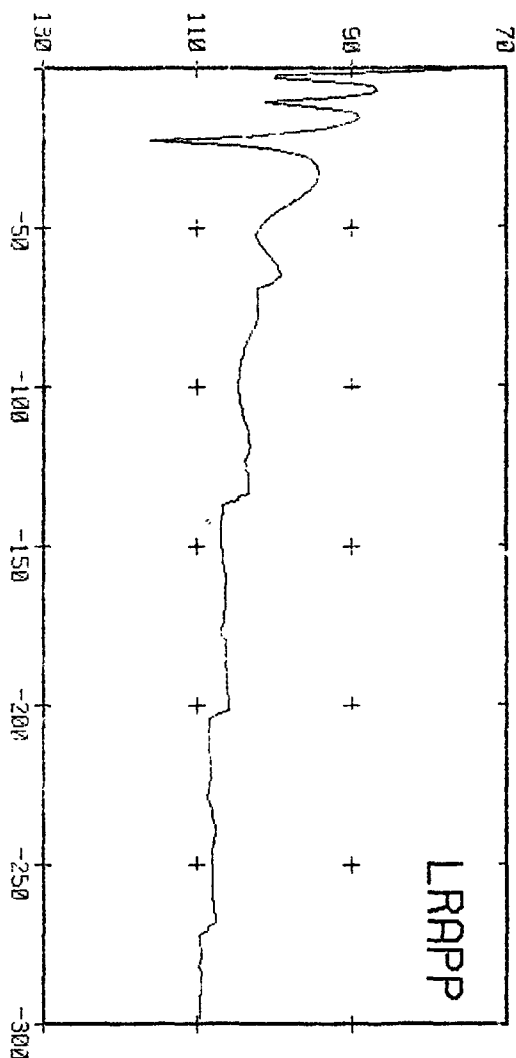


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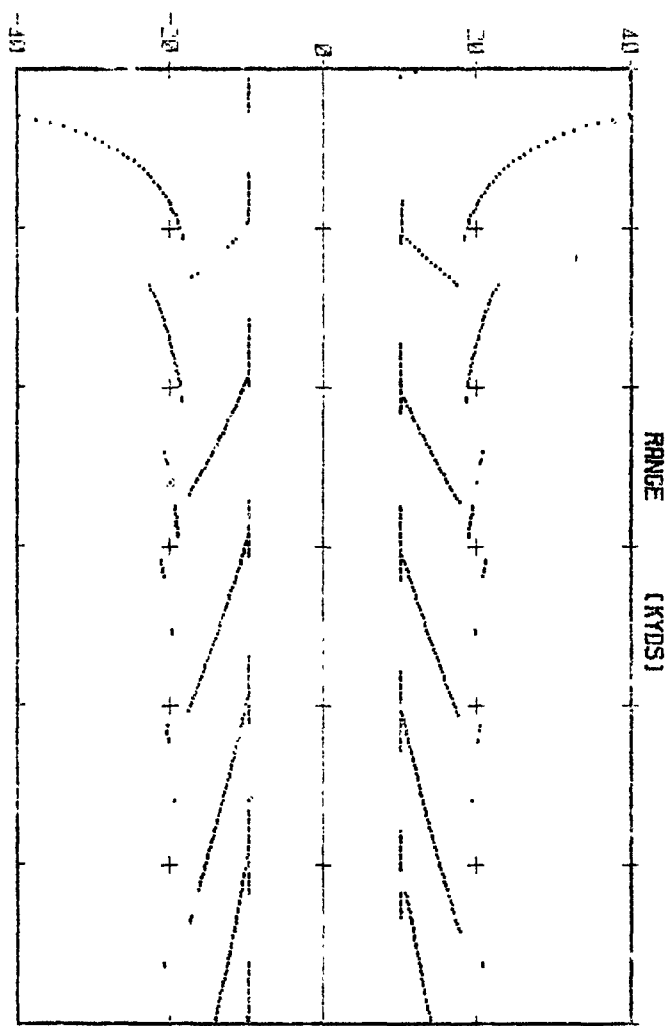
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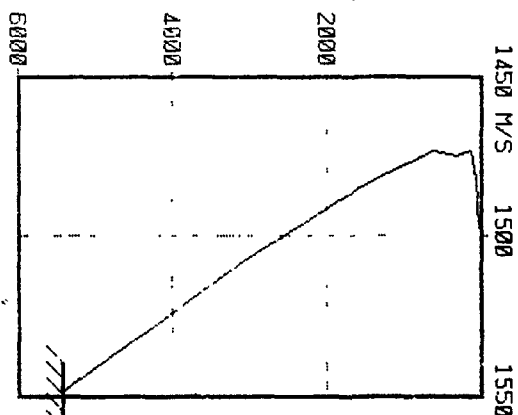
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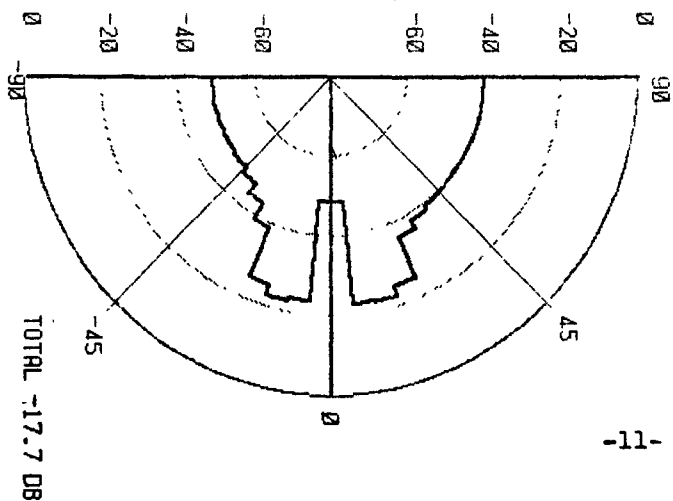
ARRIVAL ANGLE



DEPTH IN METERS



NOISE (DB)



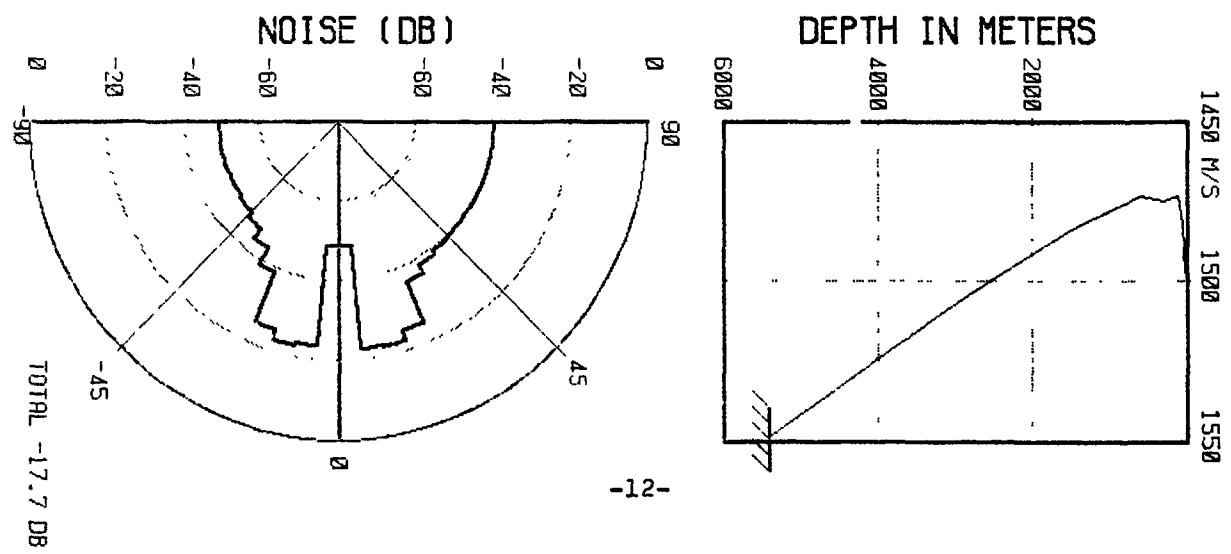
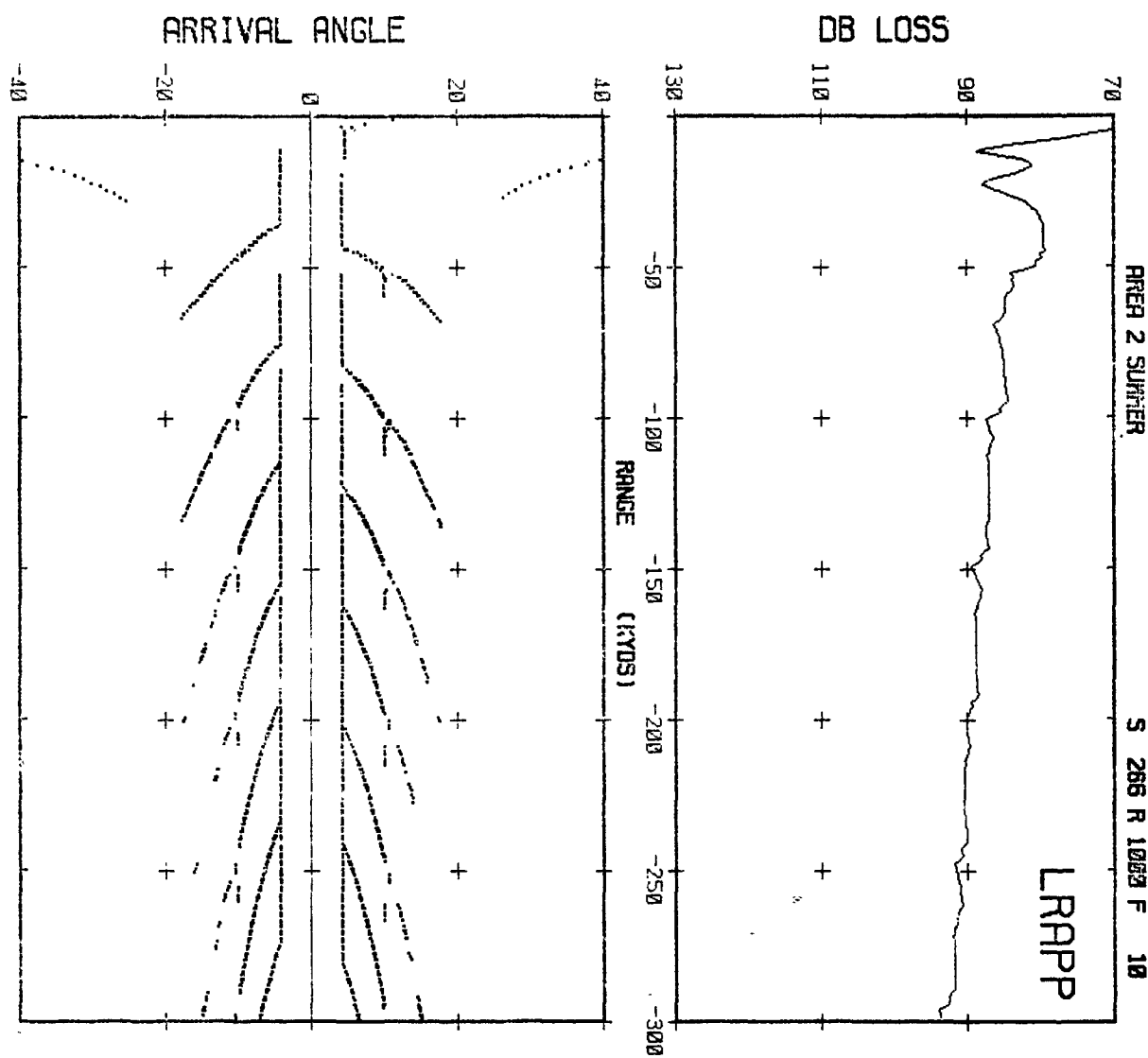
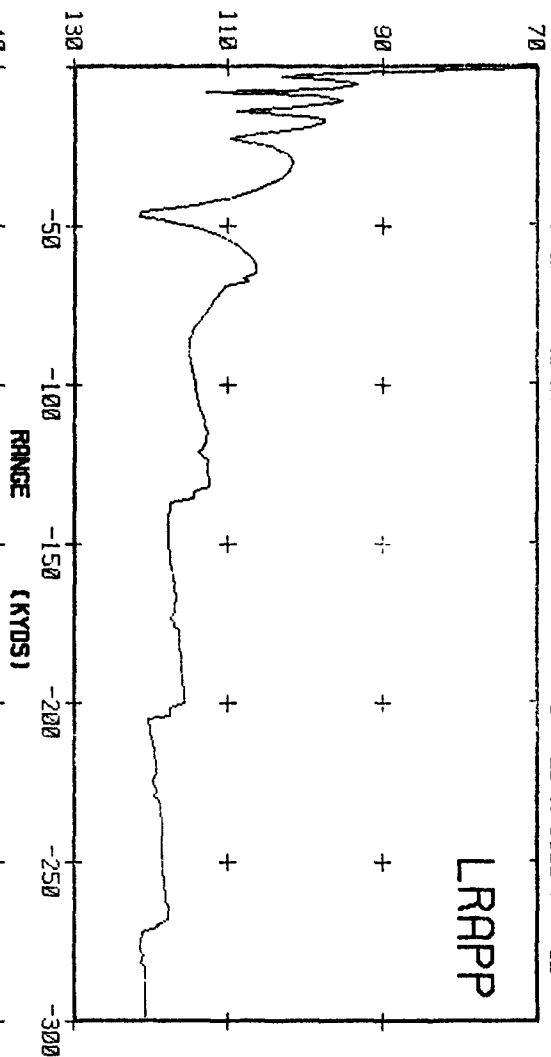


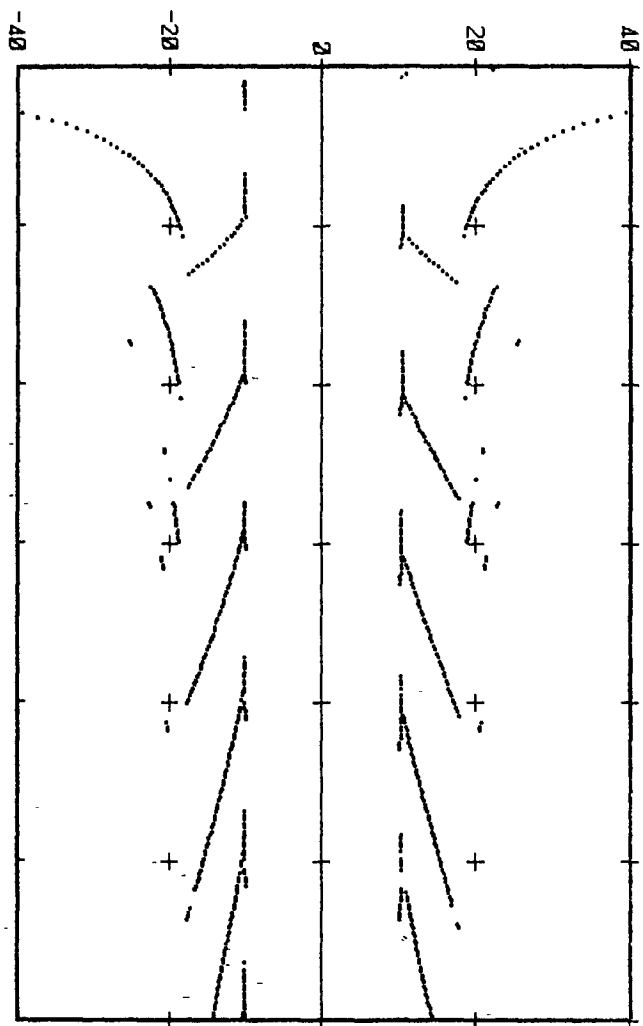
FIGURE 2 SUMMER

3 20 R 1500 F 10

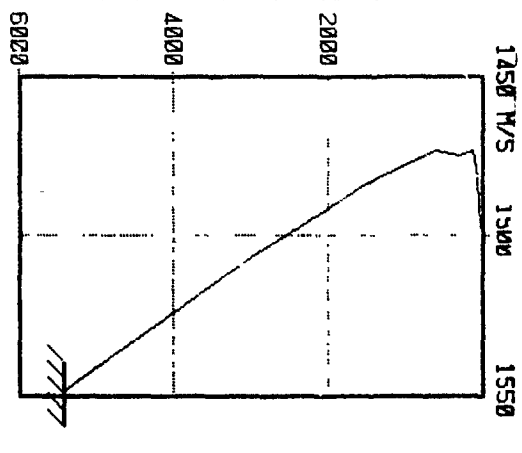
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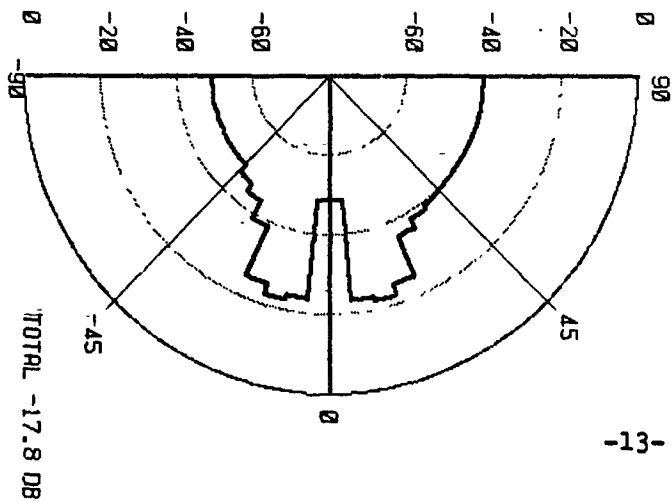
ARRIVAL ANGLE

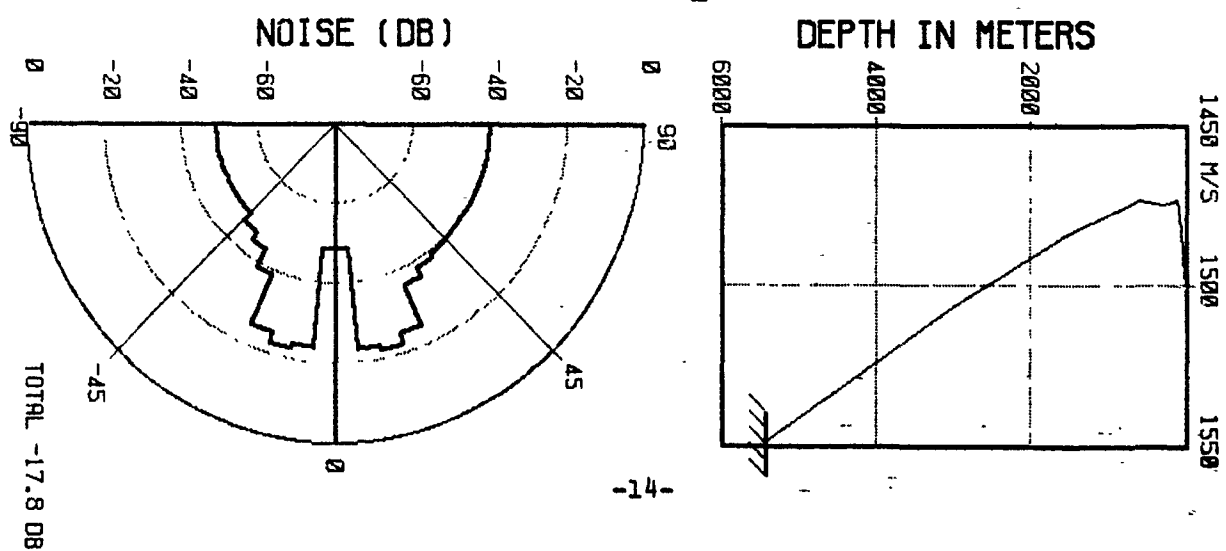
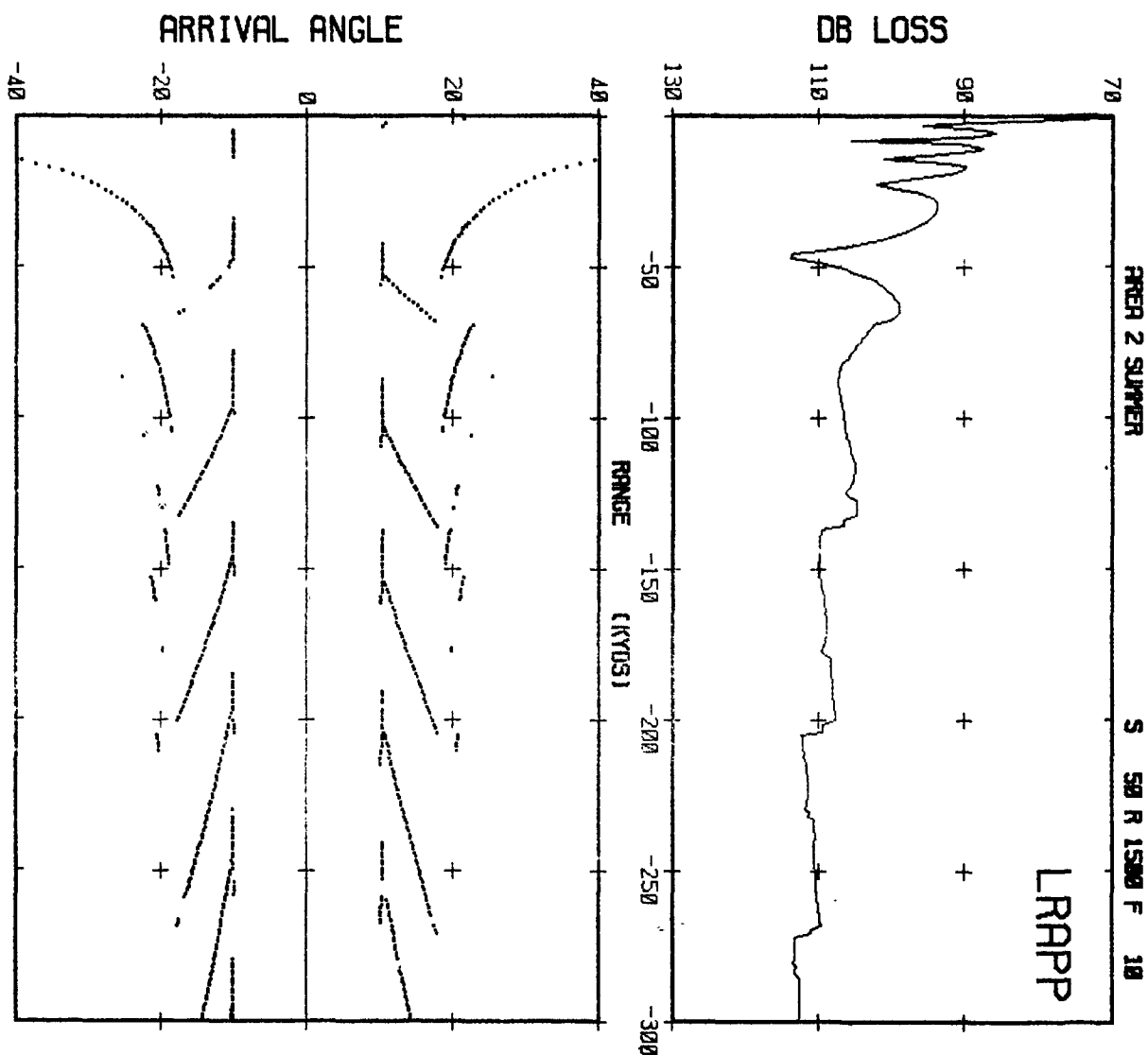


DEPTH IN METERS



NOISE (DB)



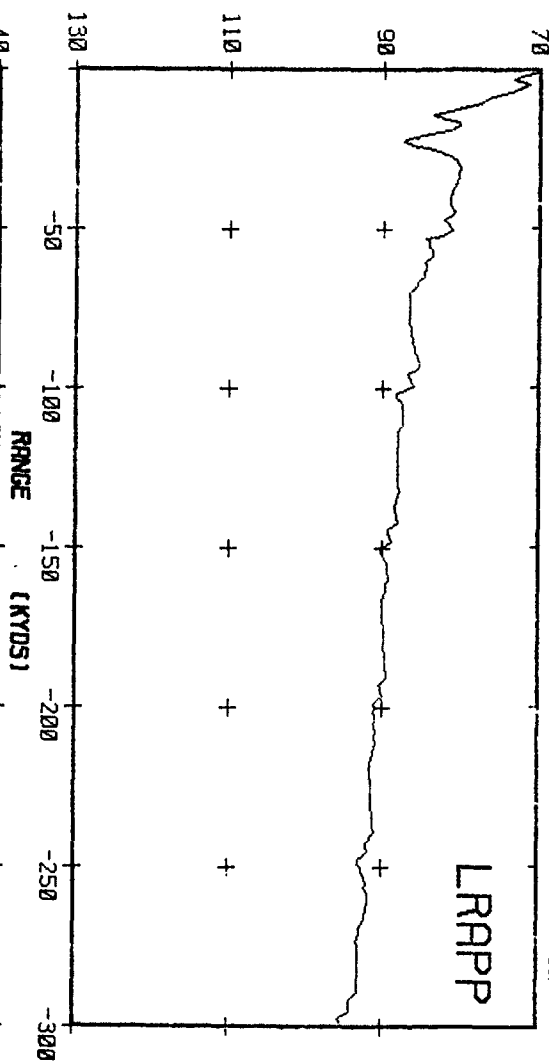


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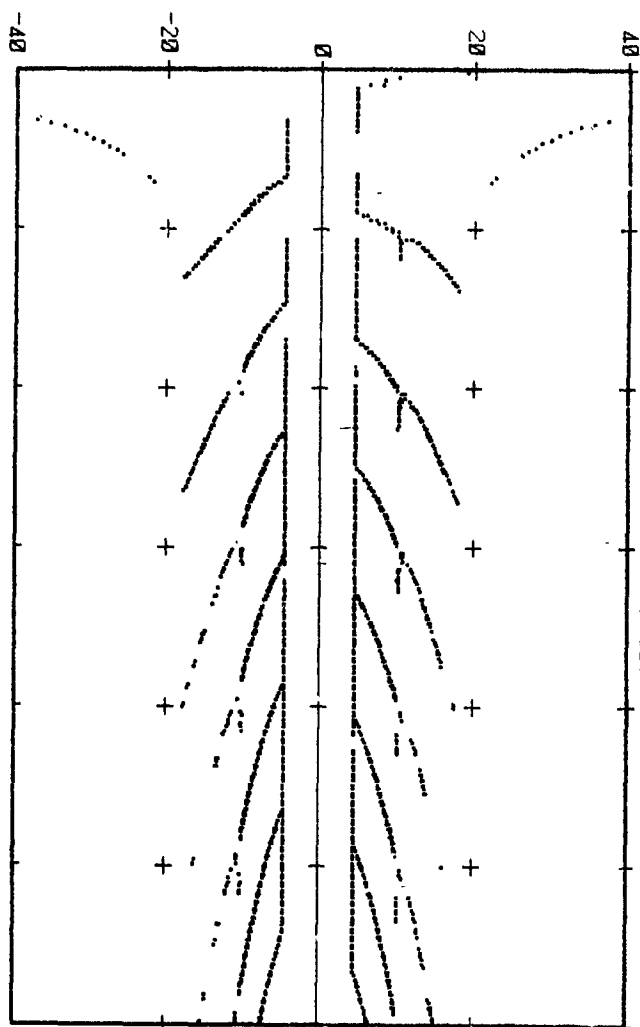
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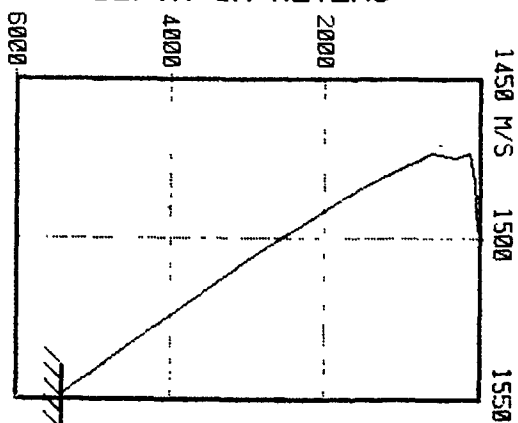
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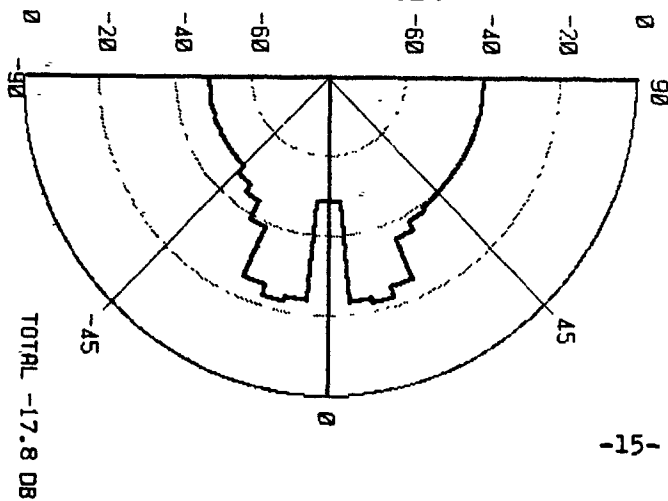
ARRIVAL ANGLE



DEPTH IN METERS



NOISE (DB)



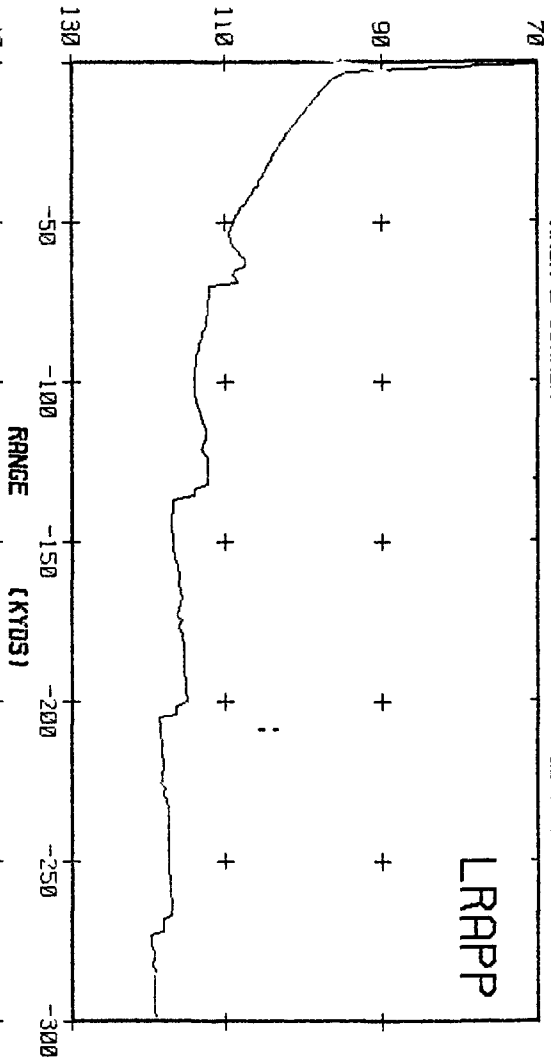
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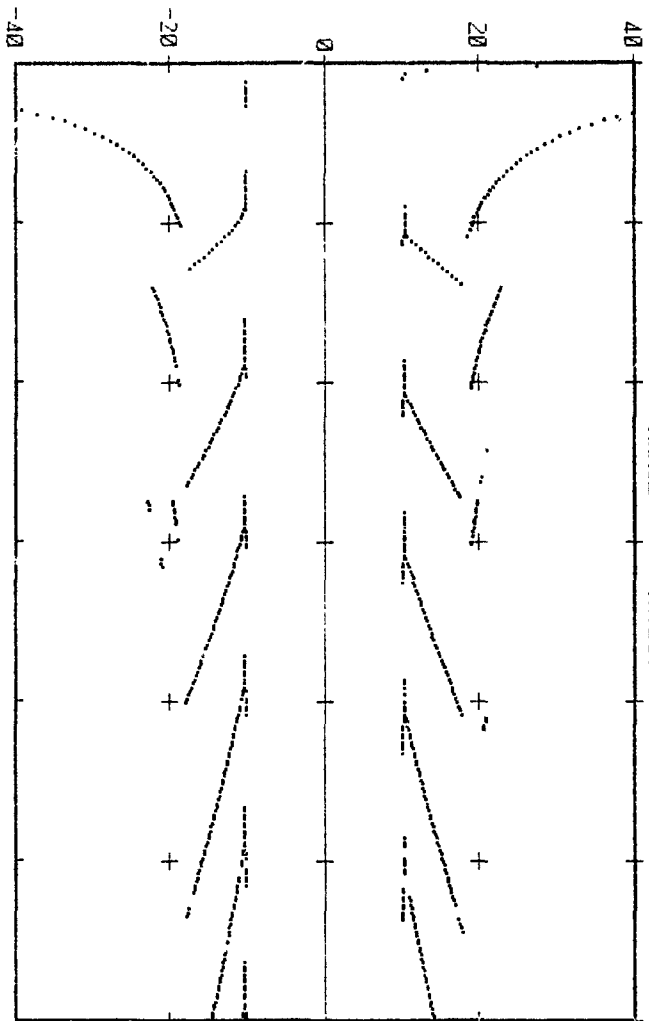
AREA 2 SUMMER

S 20 R 1968 F 10

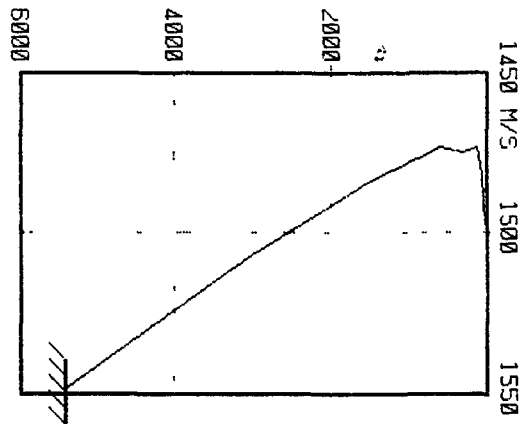
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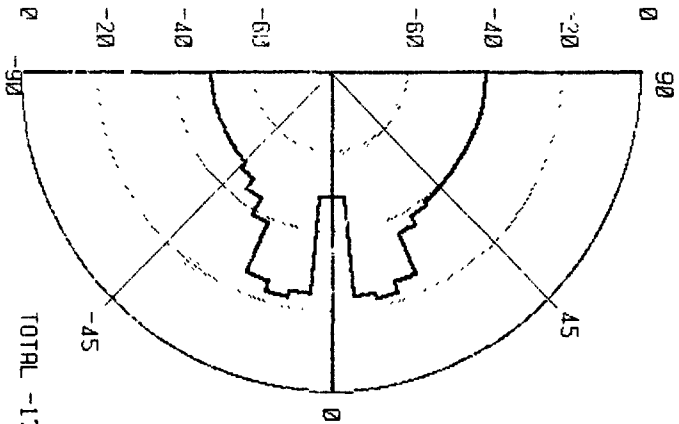
ARRIVAL ANGLE



DEPTH IN METERS



NOISE (DB)

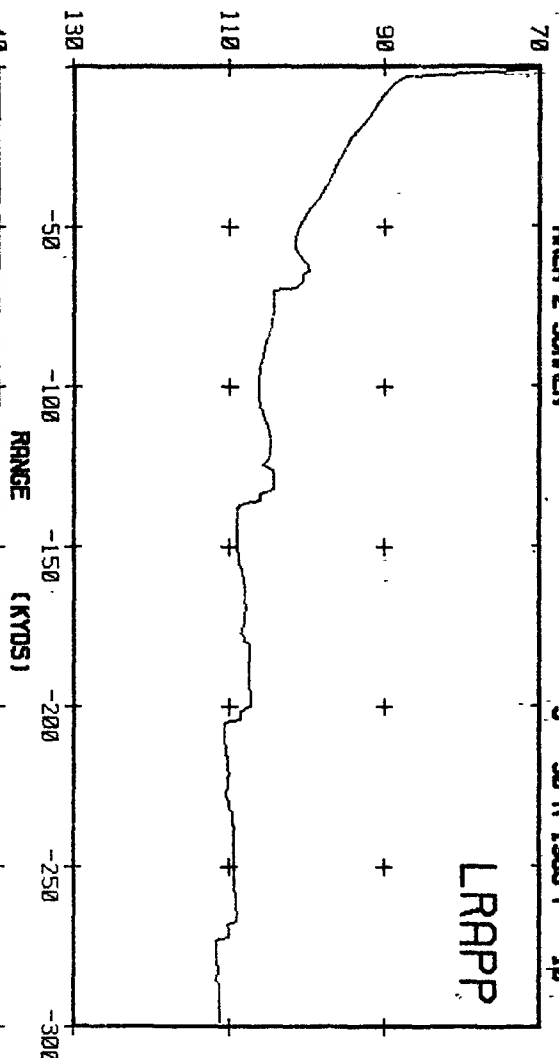


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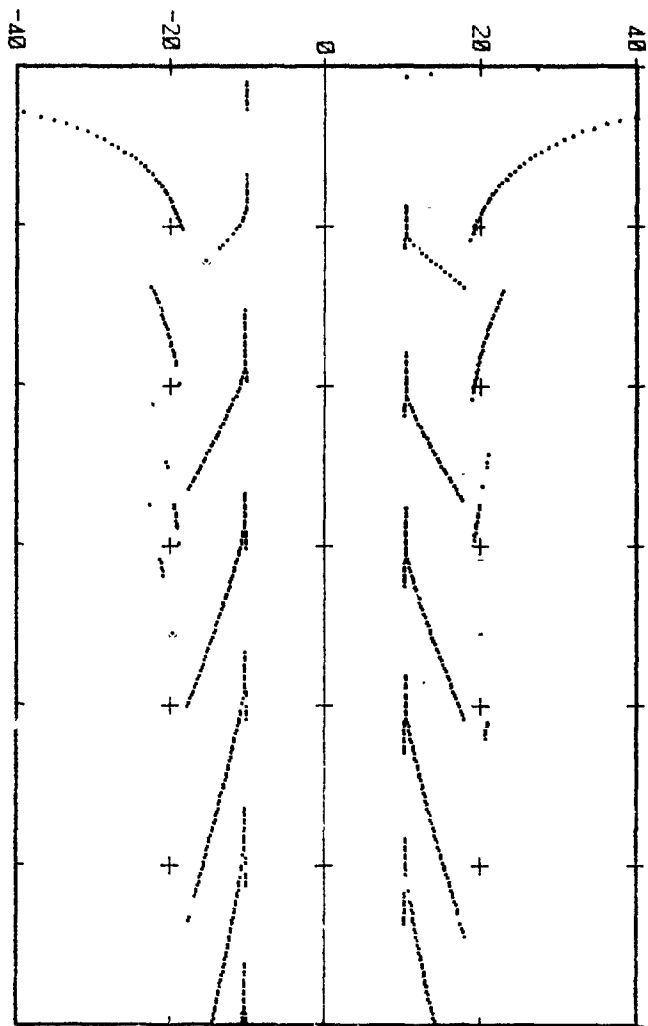
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LRAPP

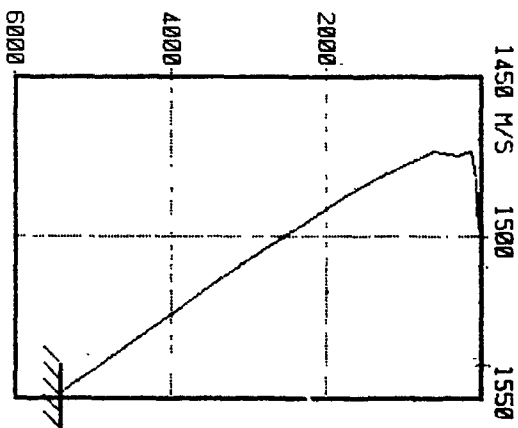
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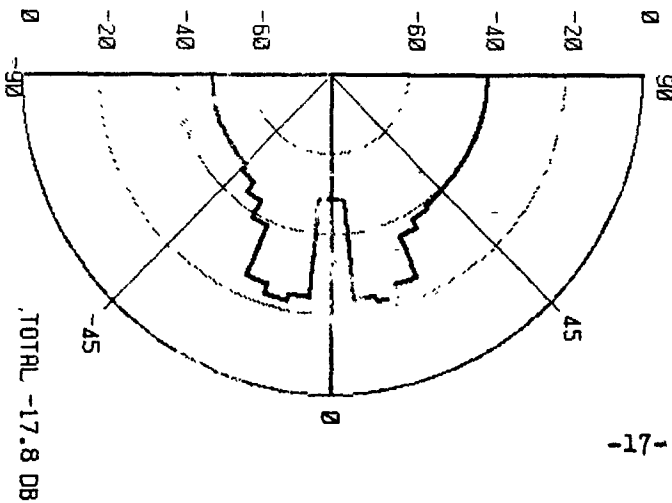
ARRIVAL ANGLE



DEPTH IN METERS



NOISE (DB)



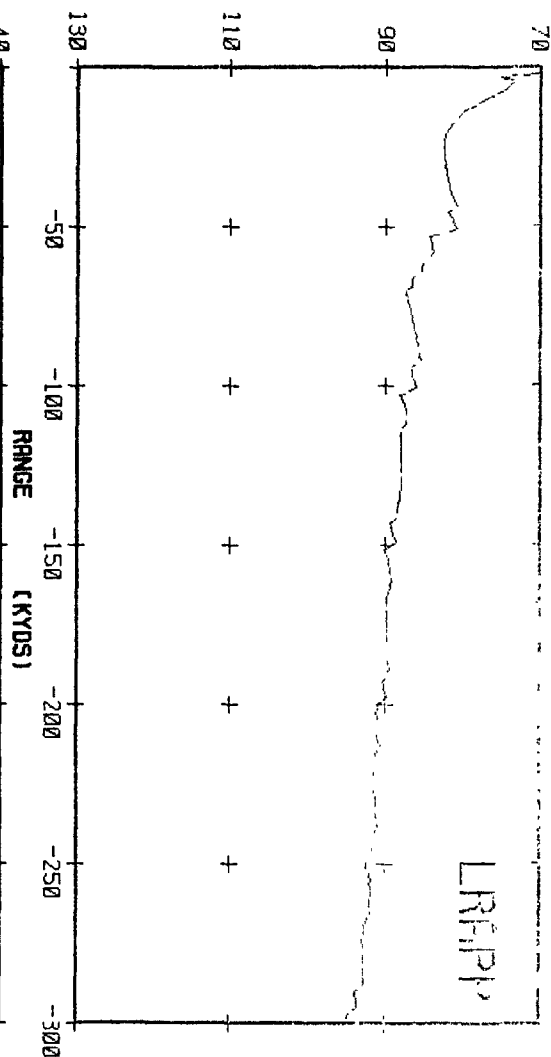
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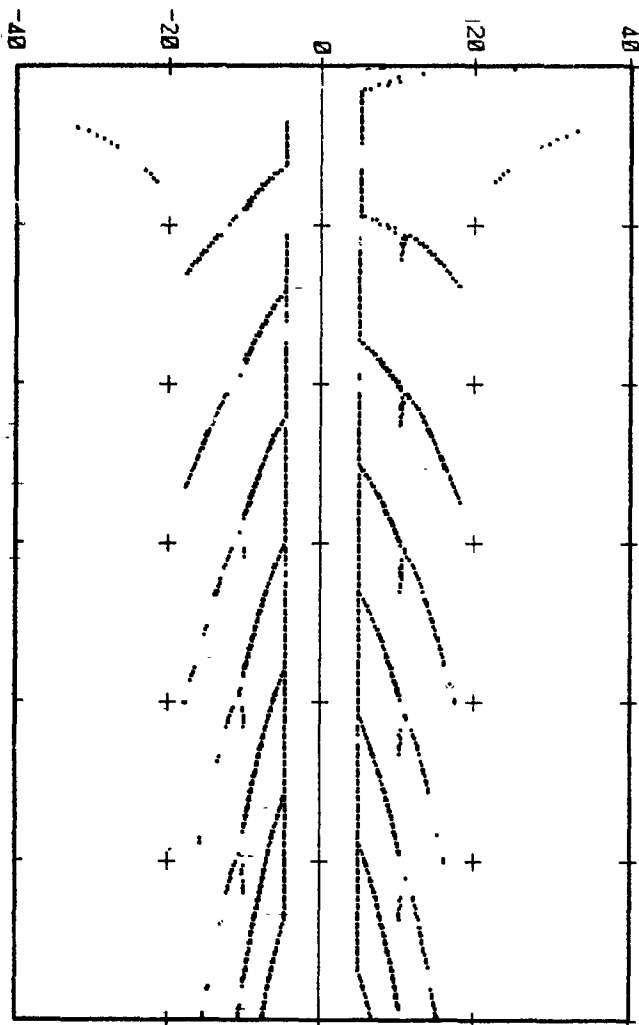
265 R 1963 F 10

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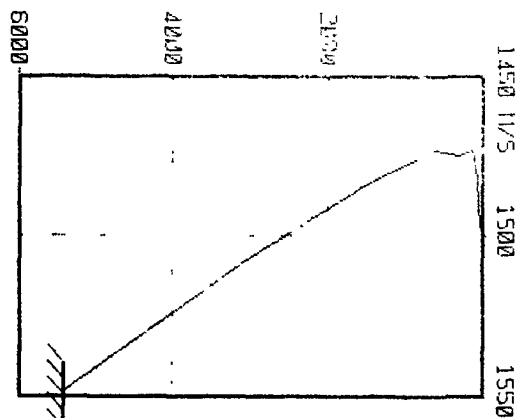
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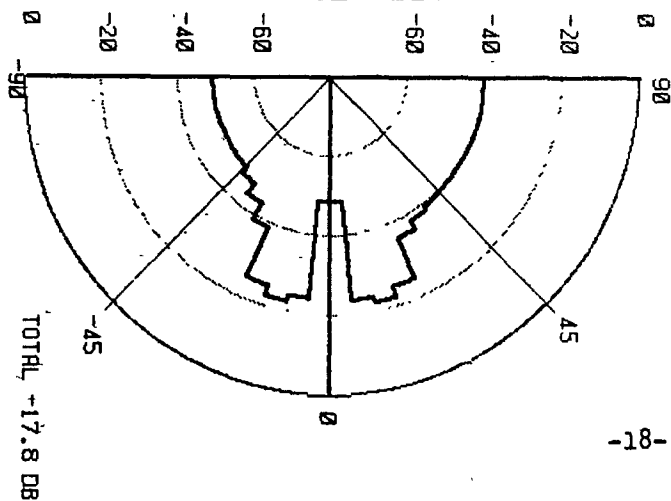
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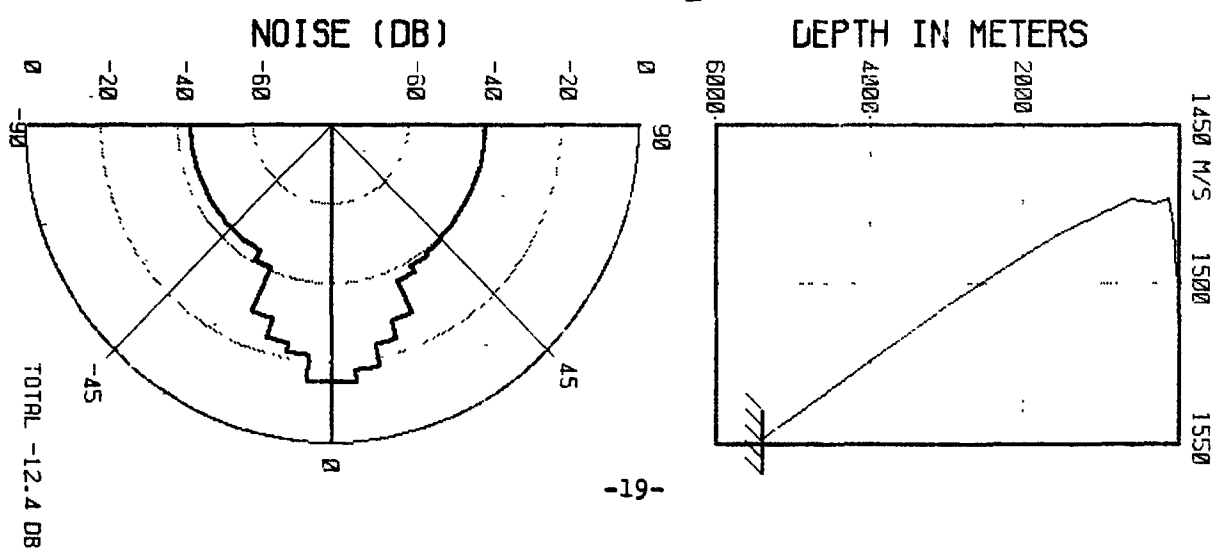
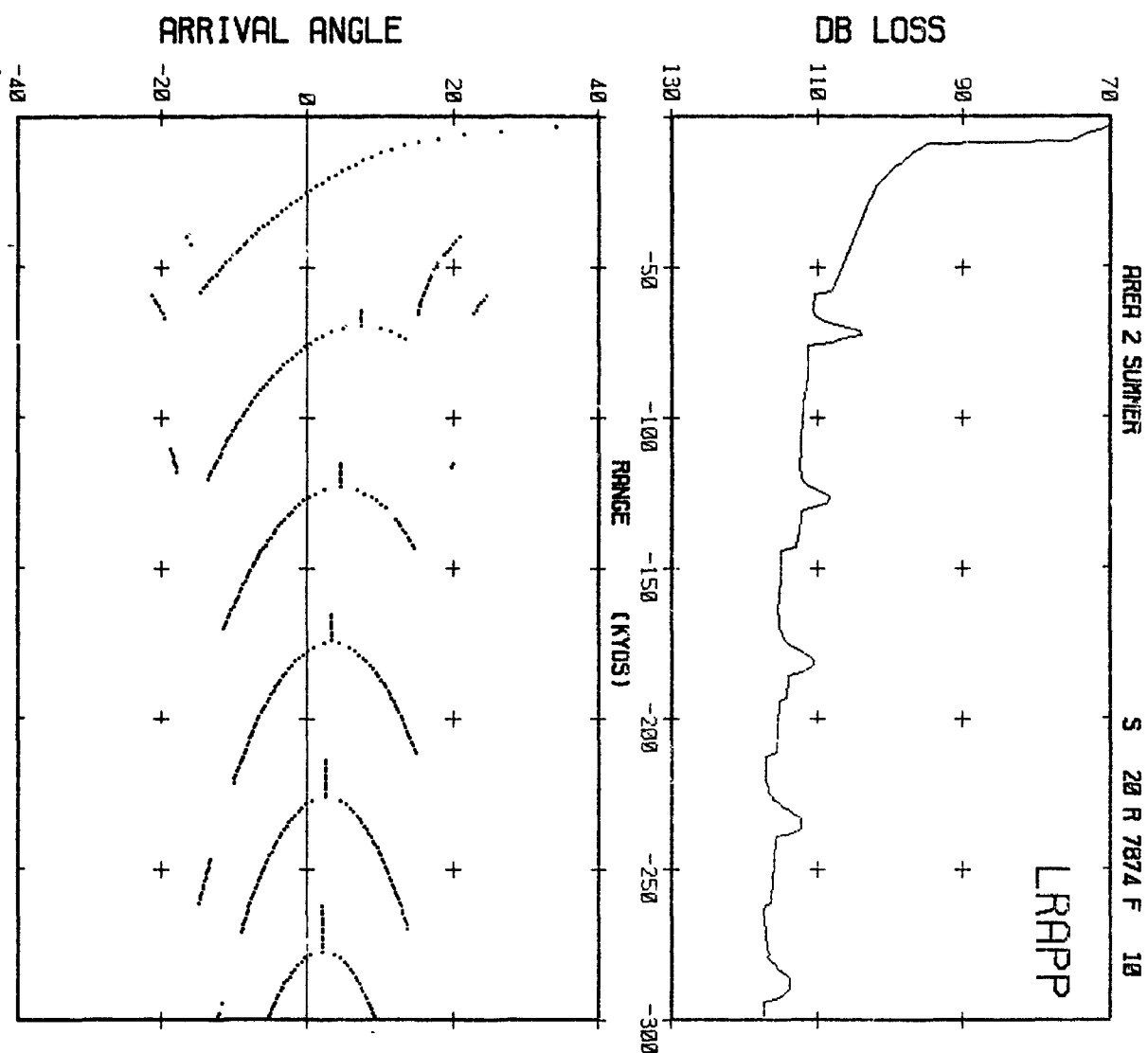


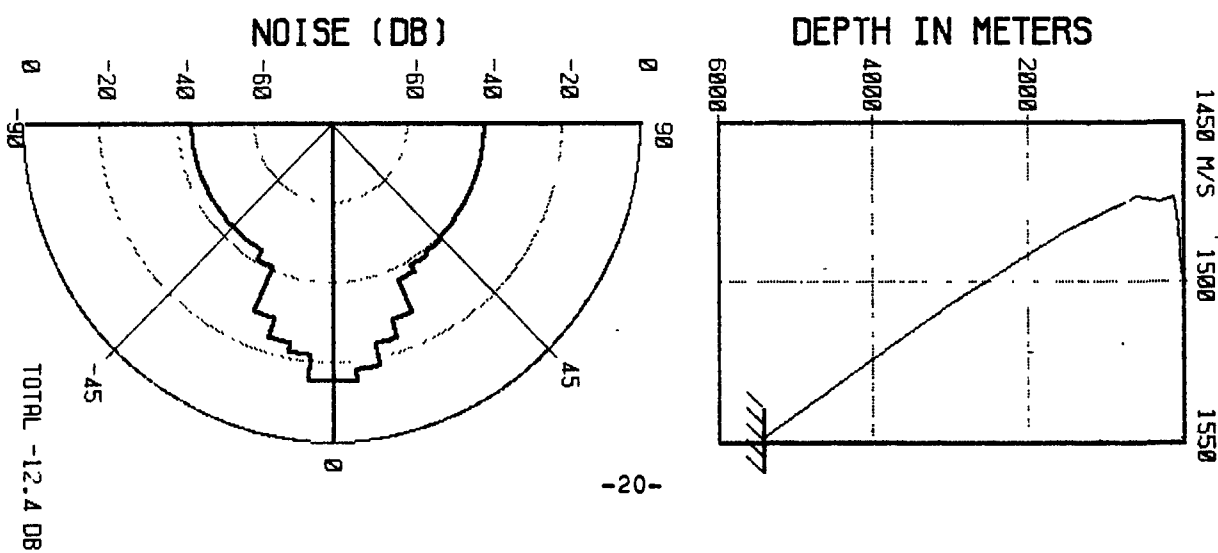
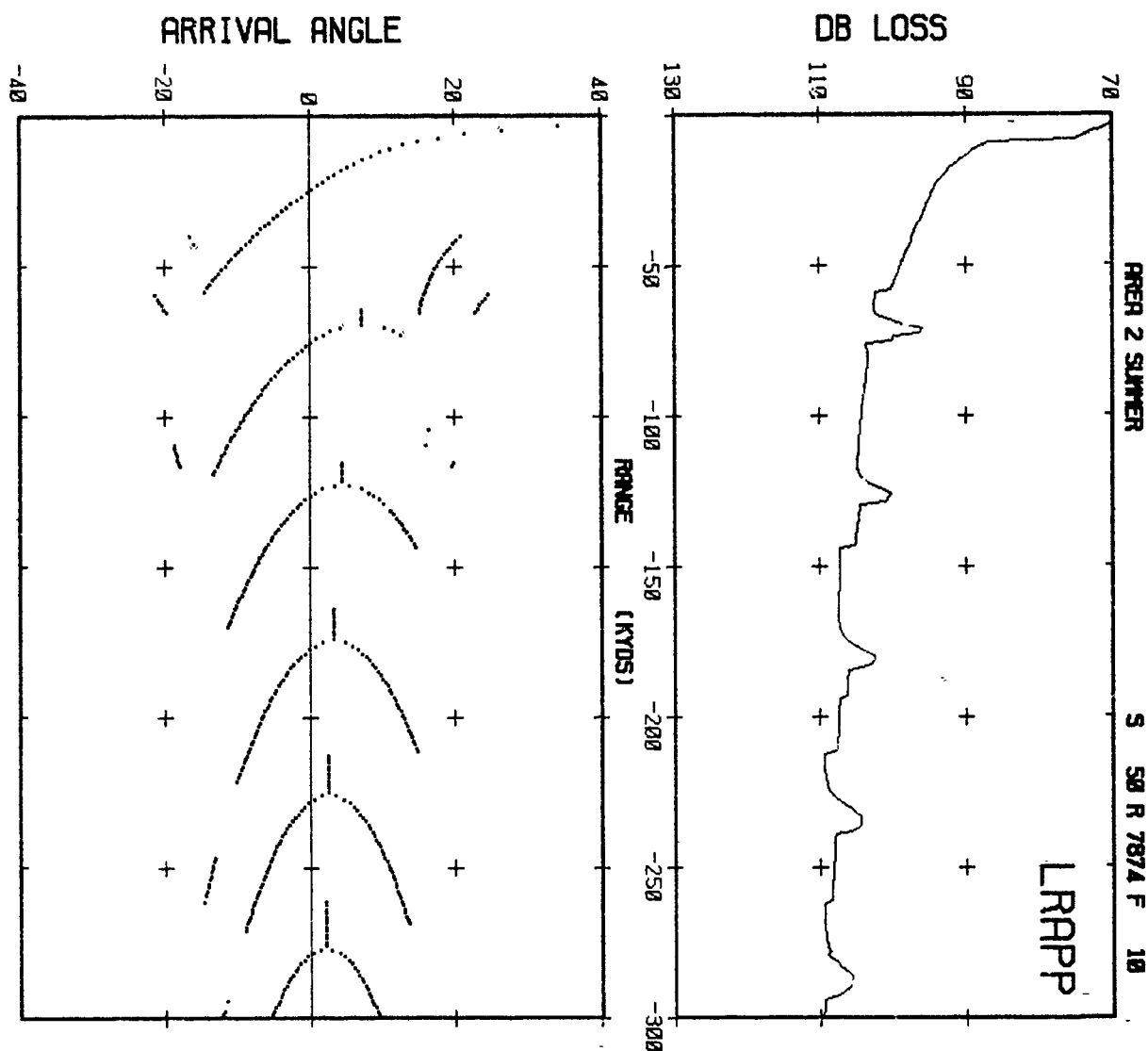
DEPTH IN METERS



NOISE (DB)





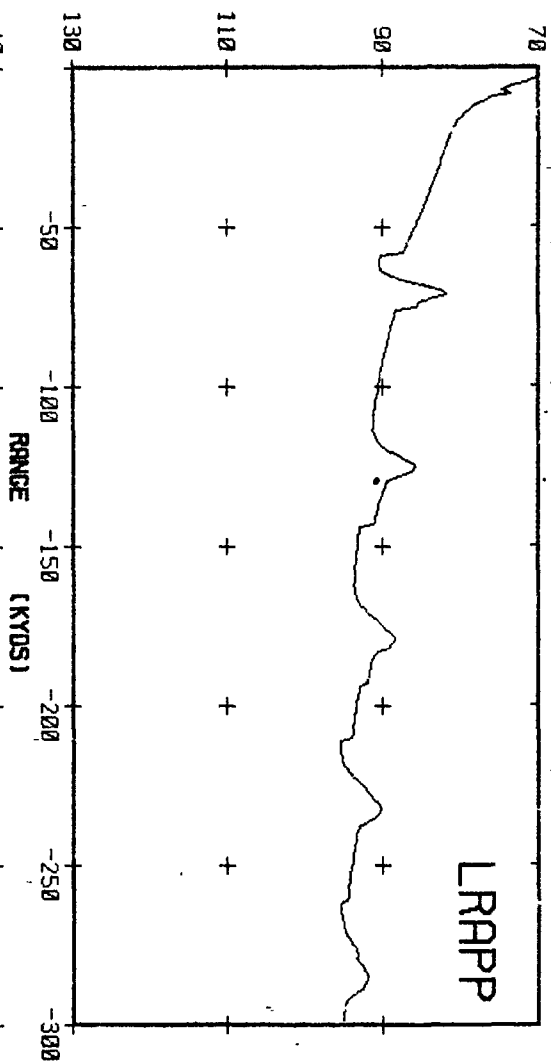


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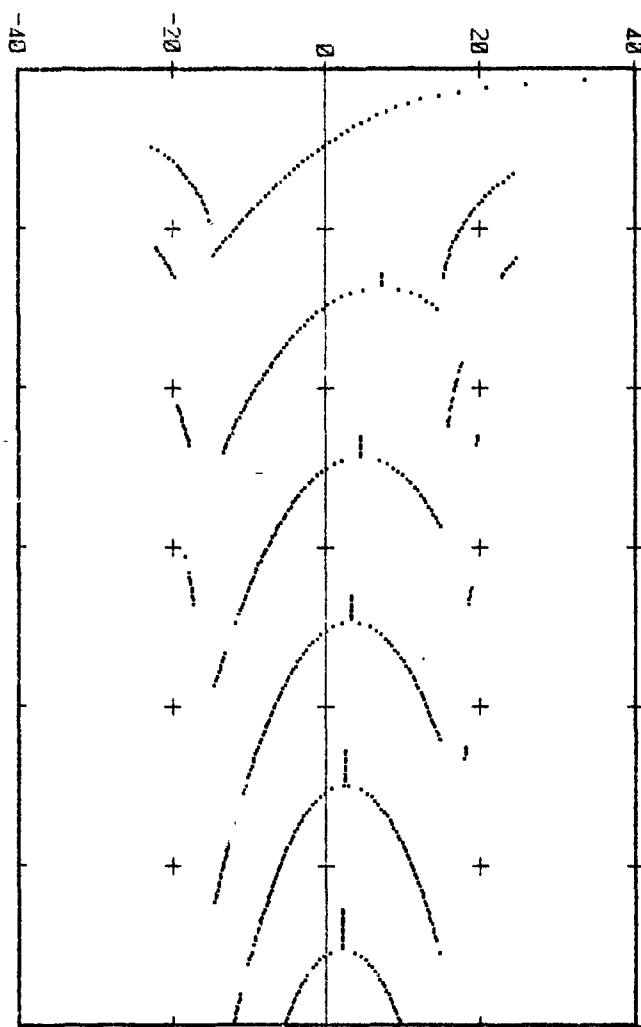
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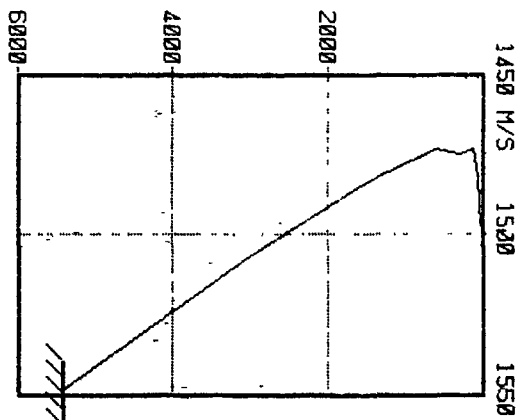
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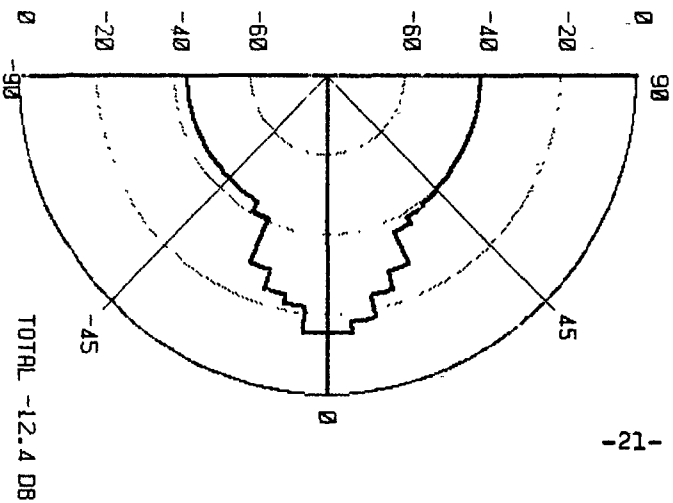
ARRIVAL ANGLE



DEPTH IN METERS



NOISE (DB)

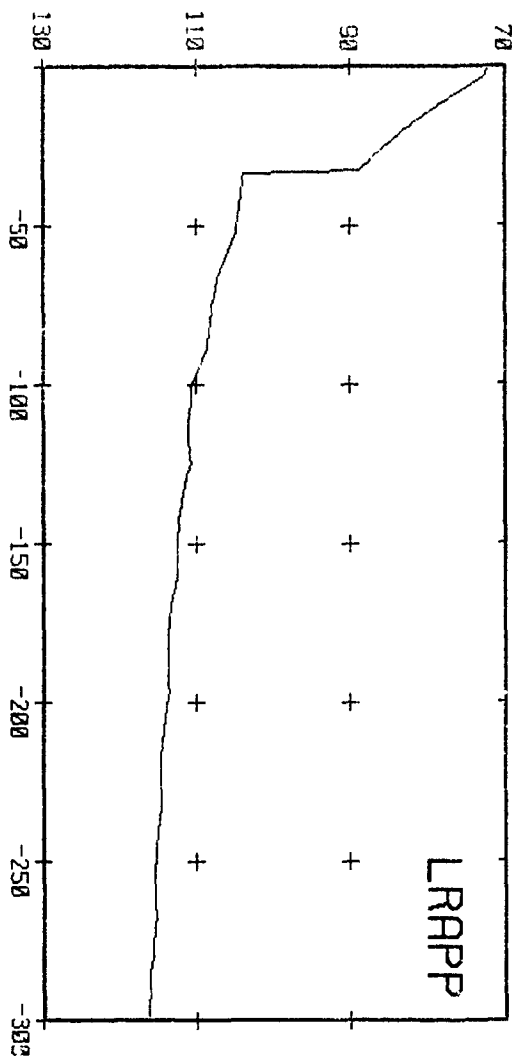


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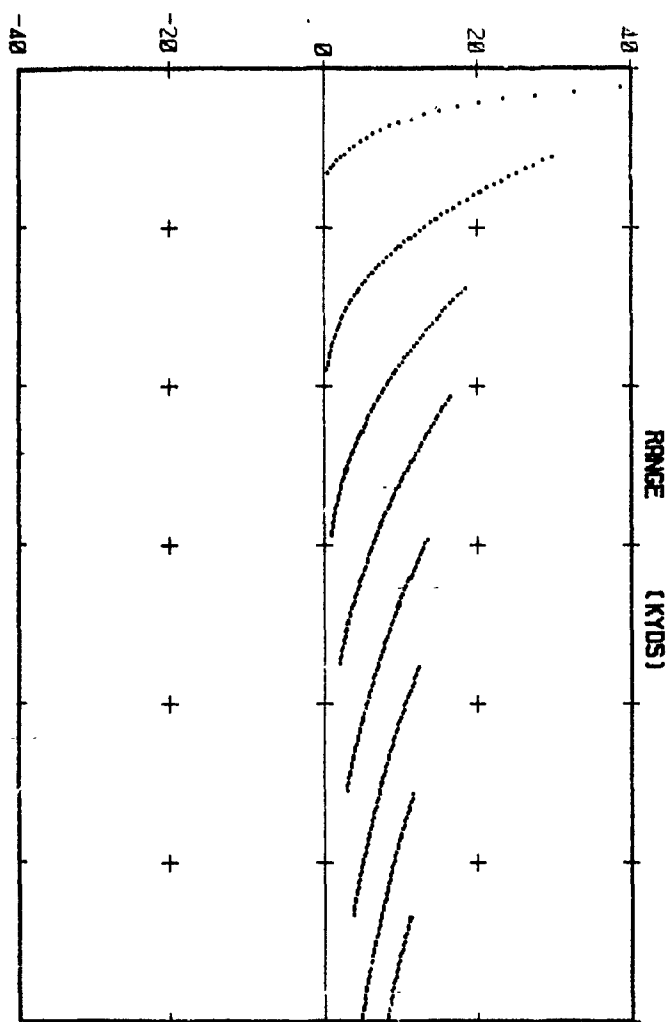
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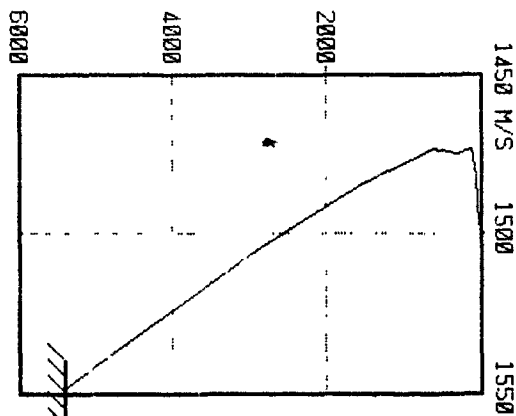
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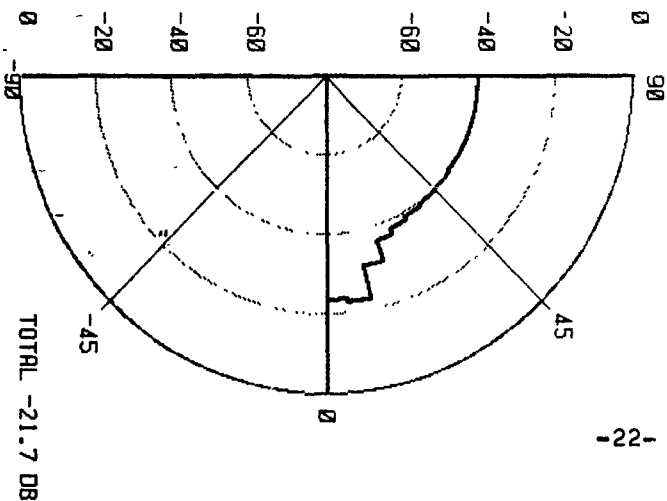
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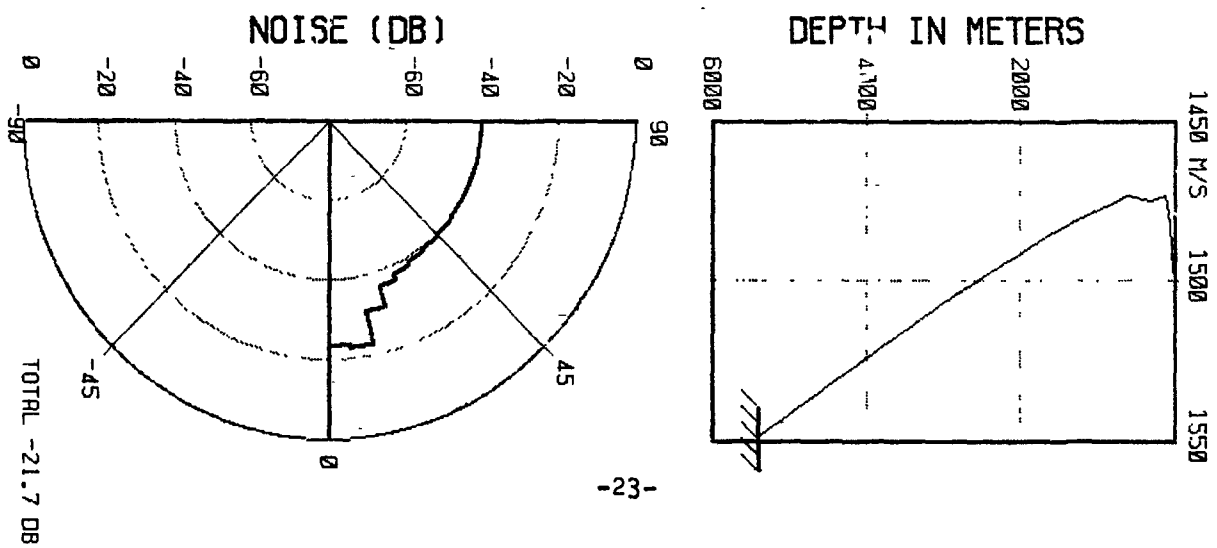
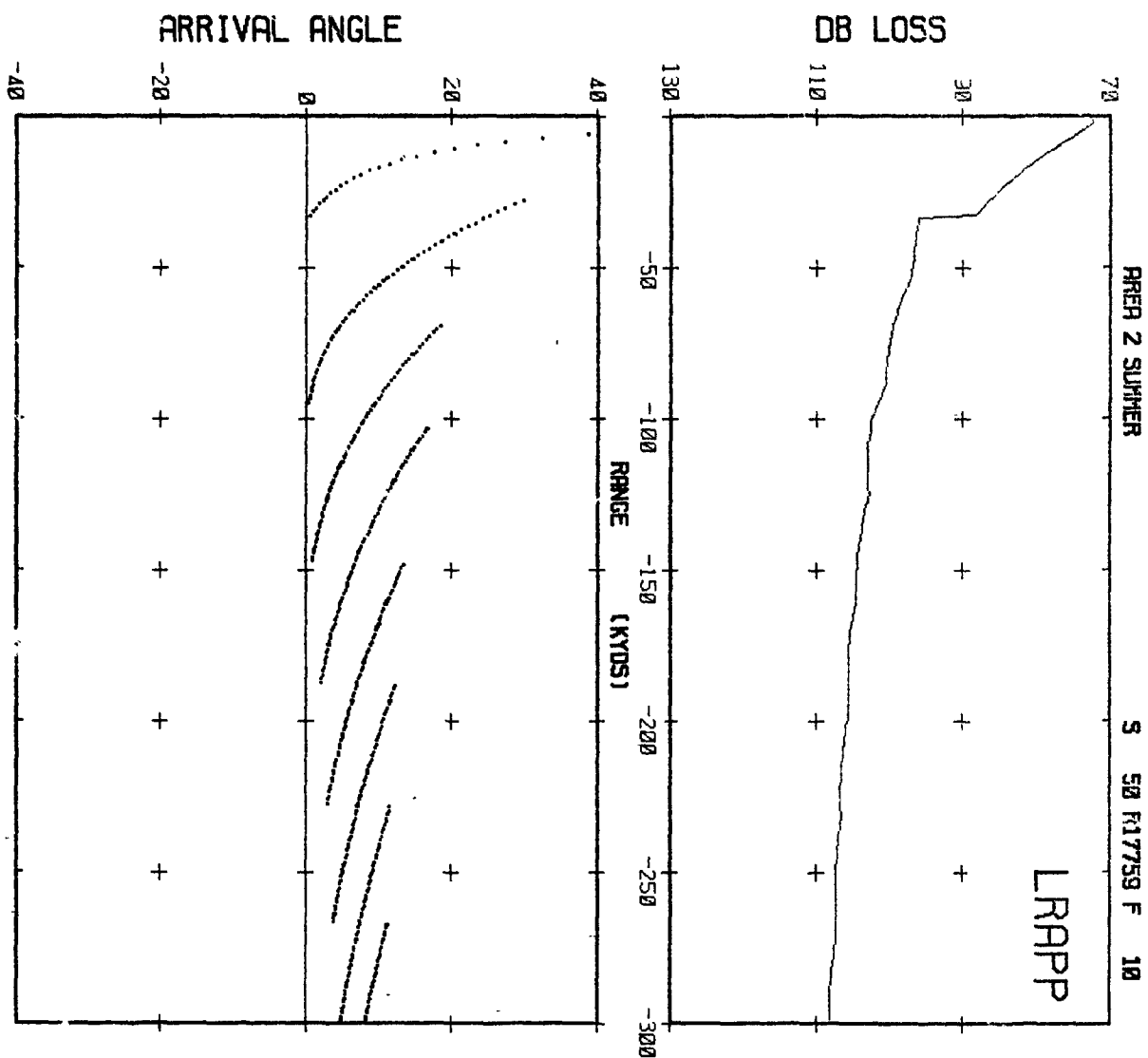


DEPTH IN METERS



NOISE (DB)





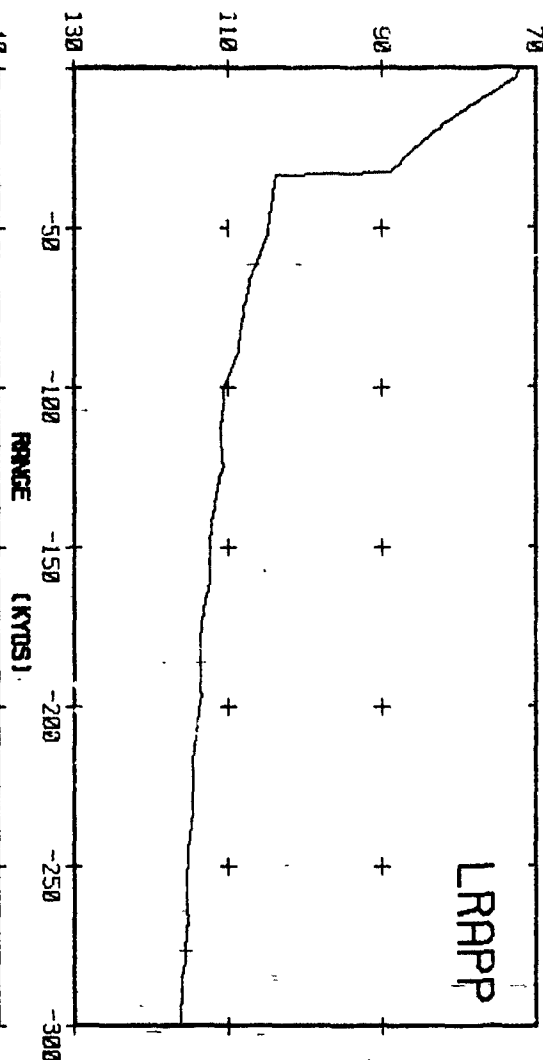


AREA 2 SUMMER

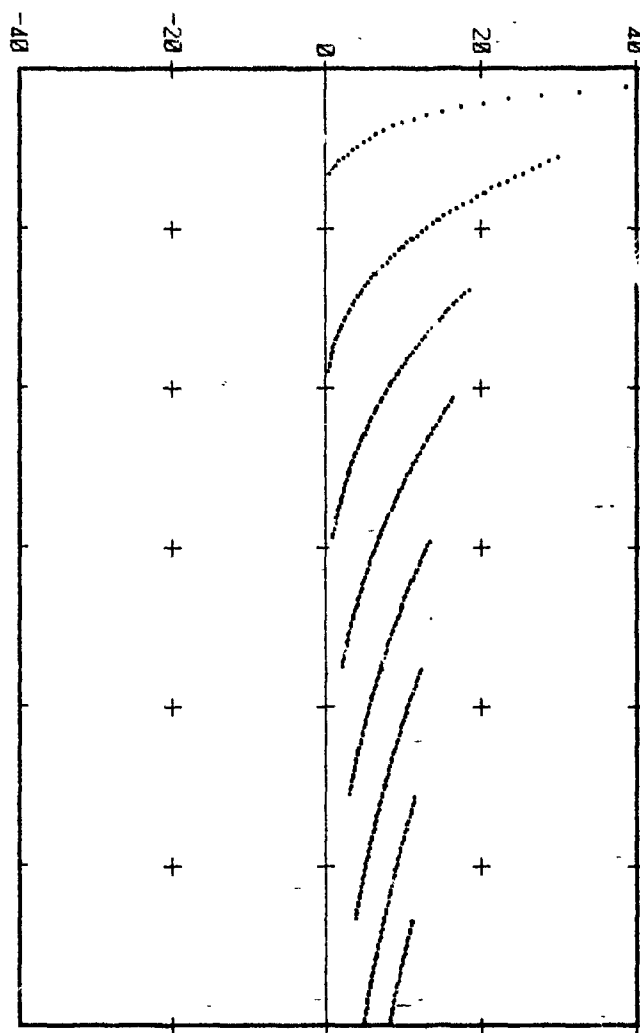
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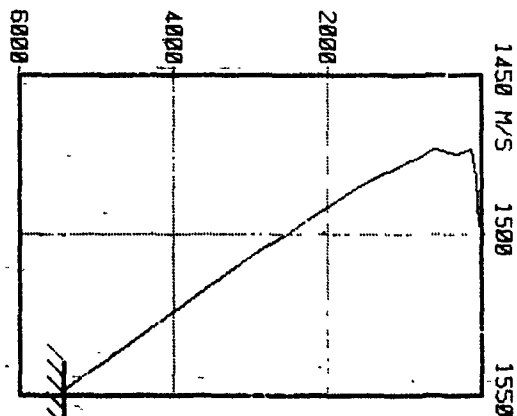
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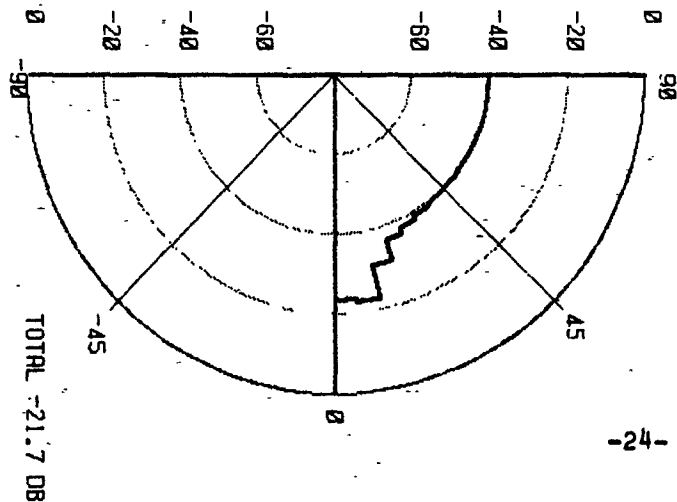
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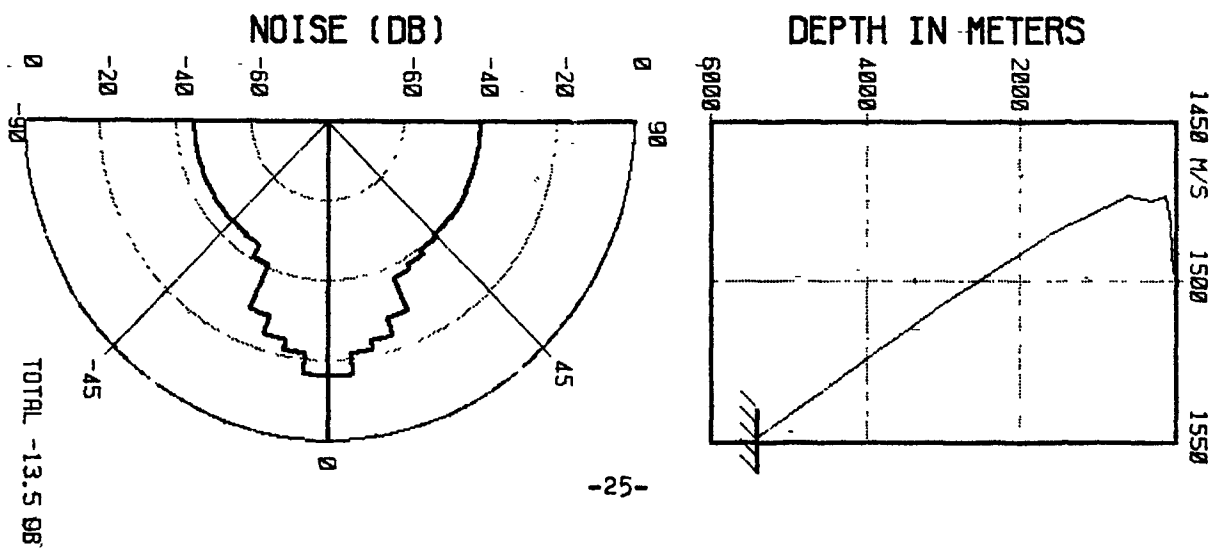
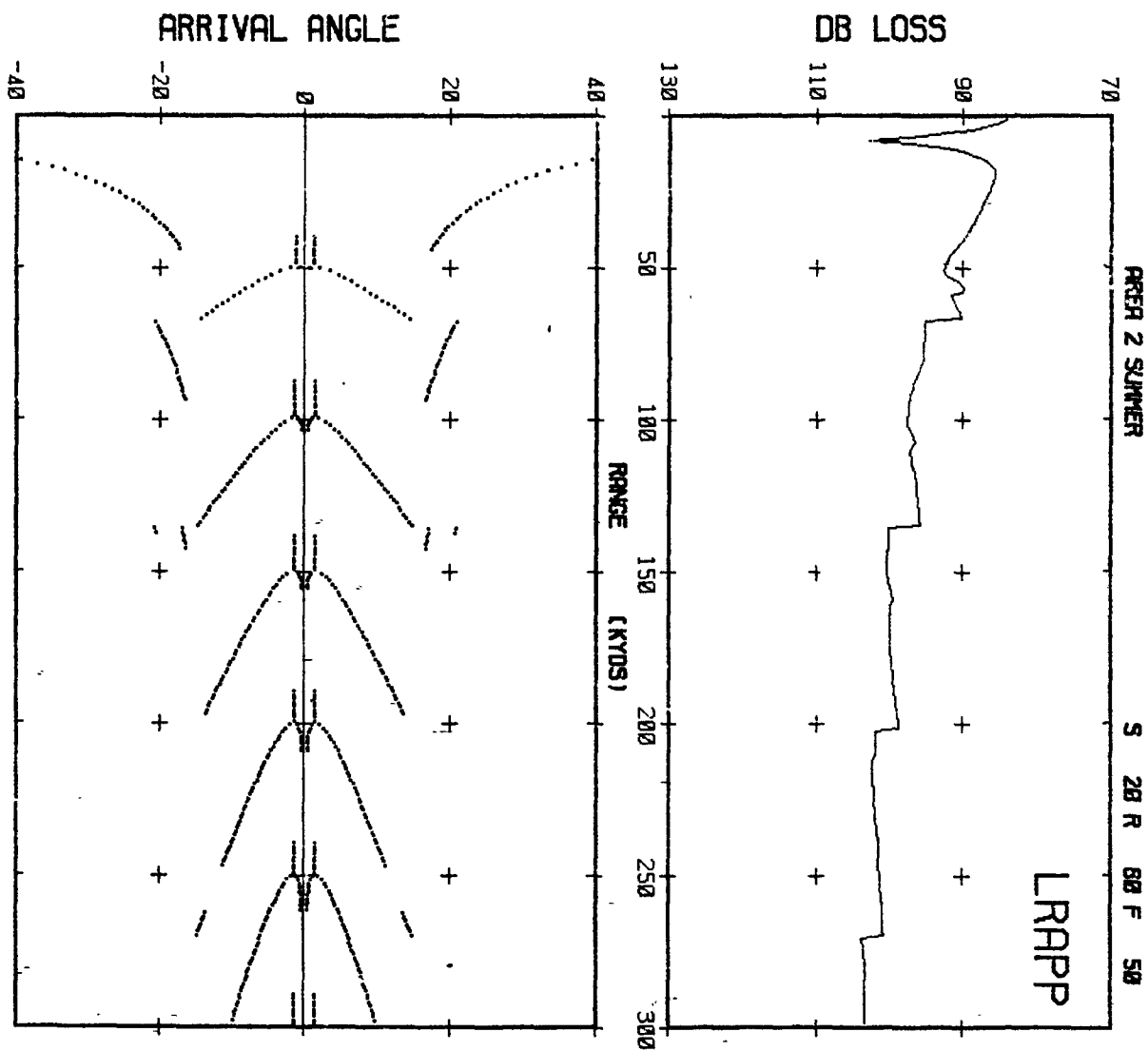


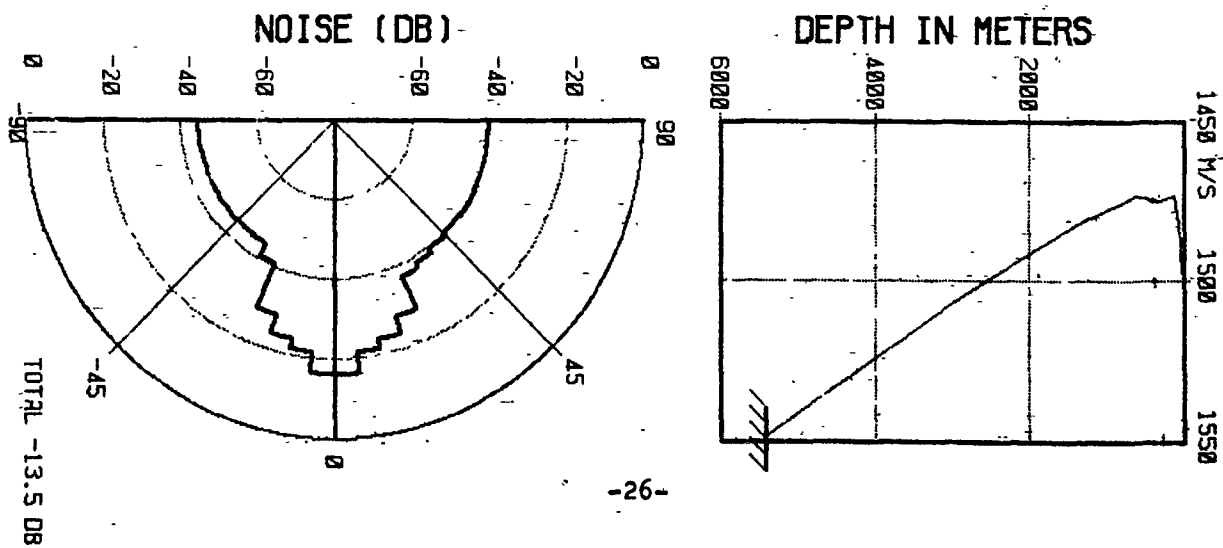
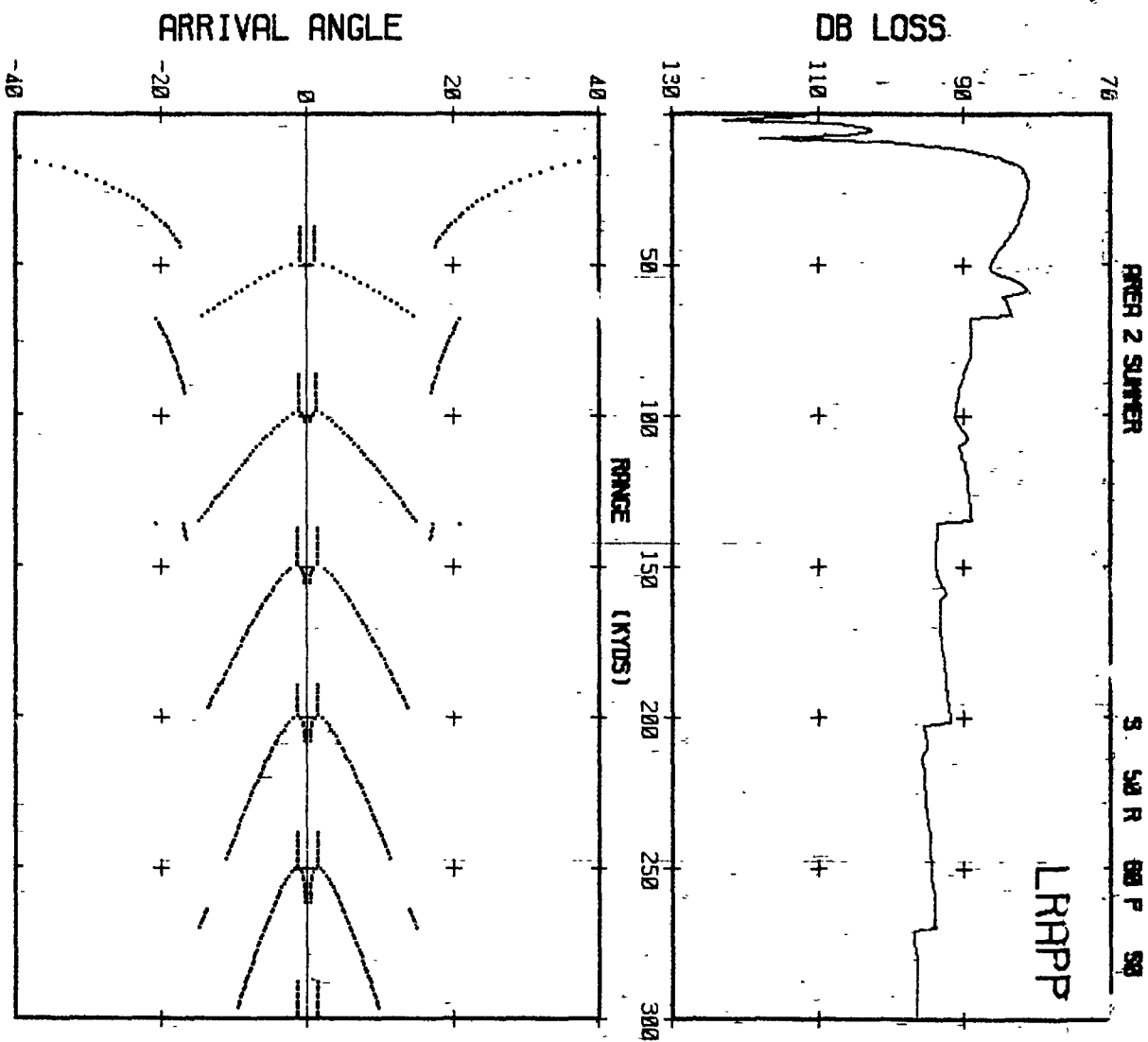
DEPTH IN METERS

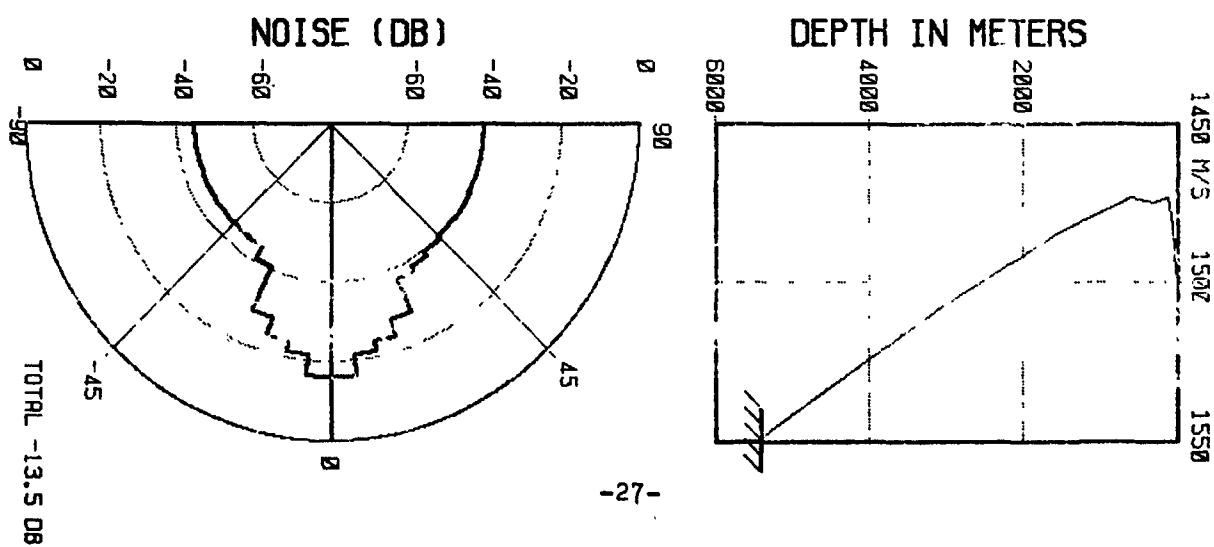
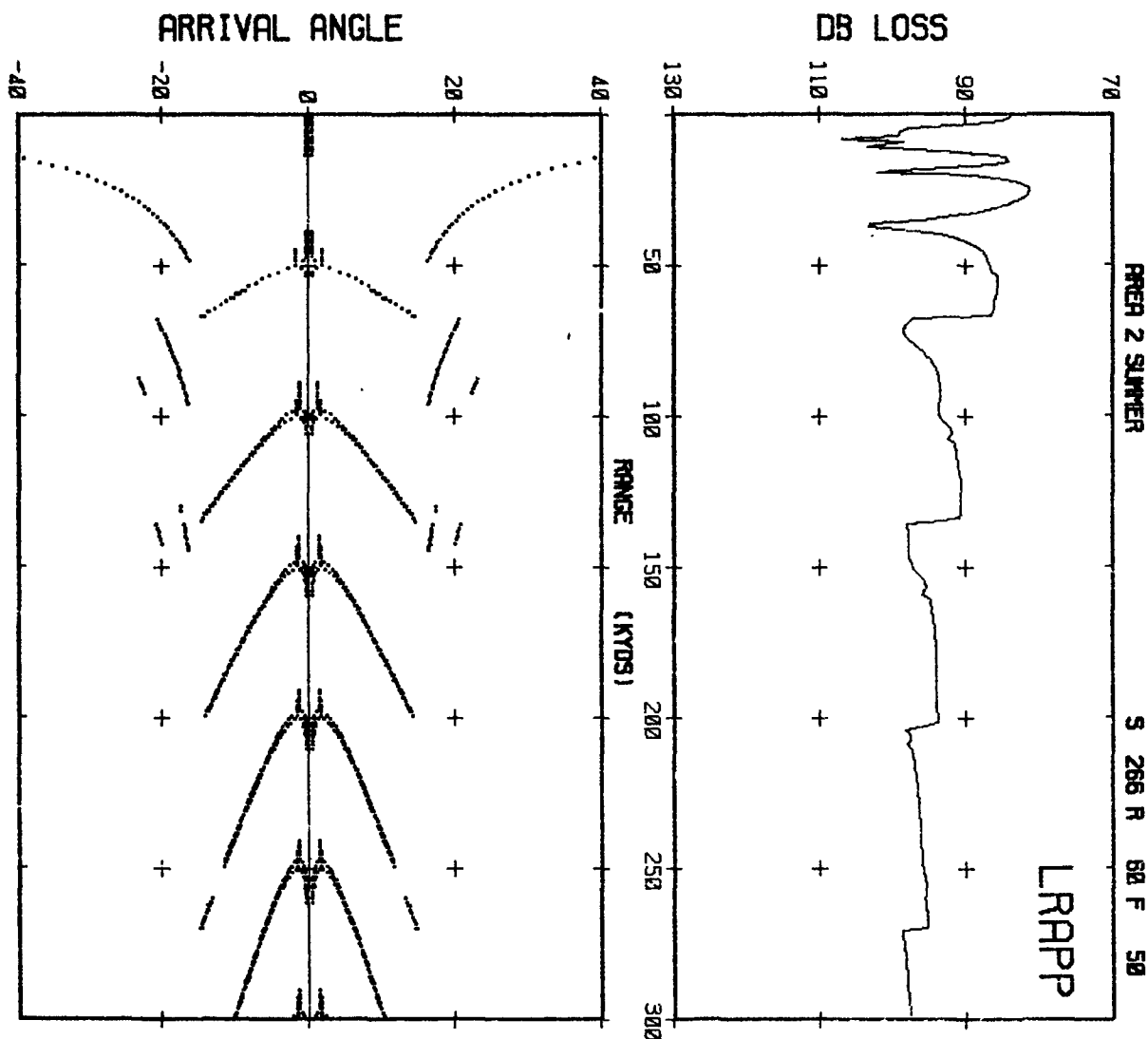


NOISE (DB)





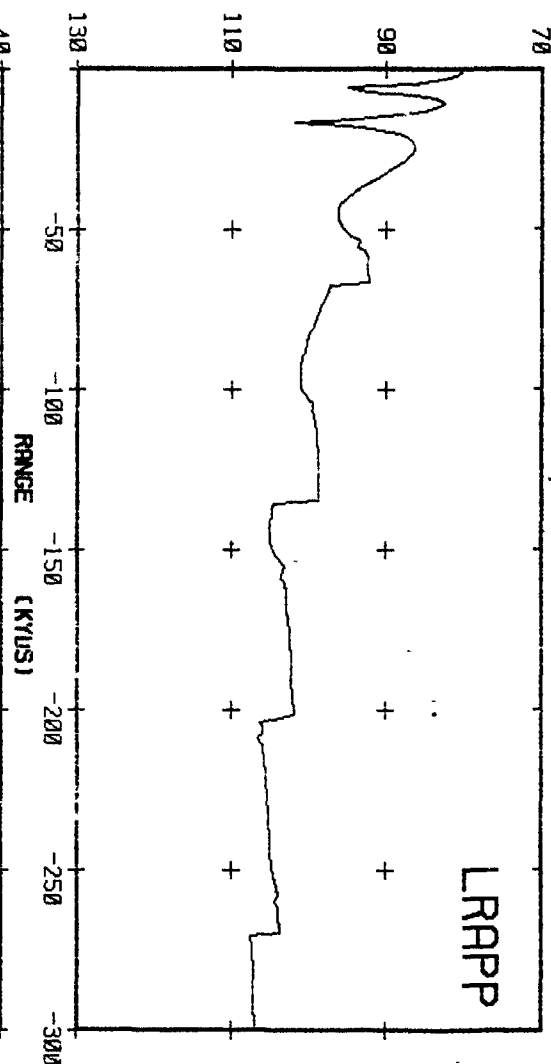




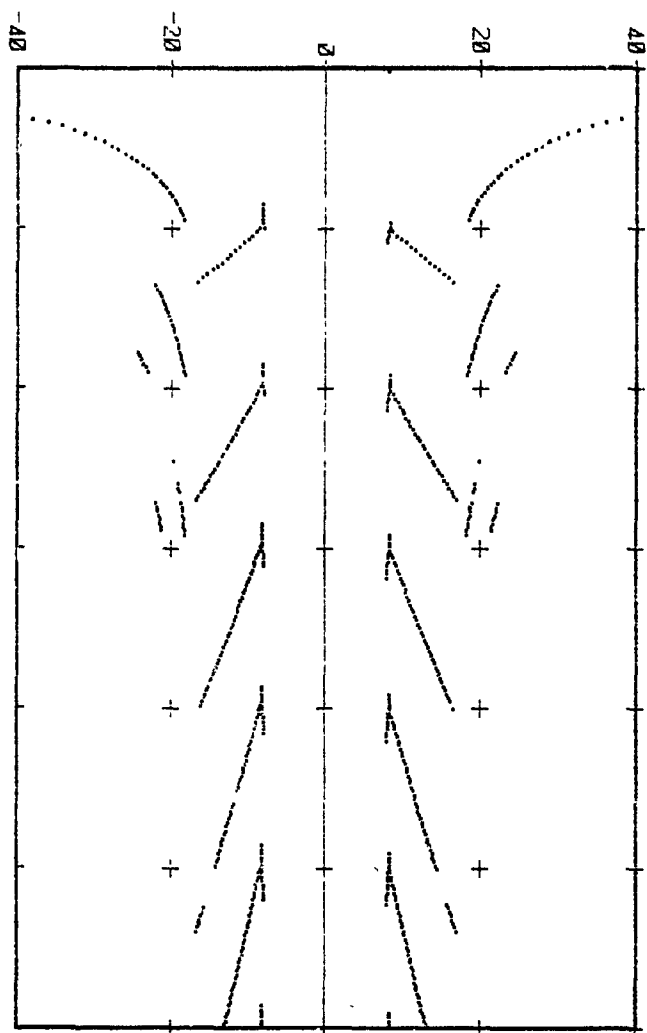
AREA 2 SUMMER

S 20 R 106 F 50

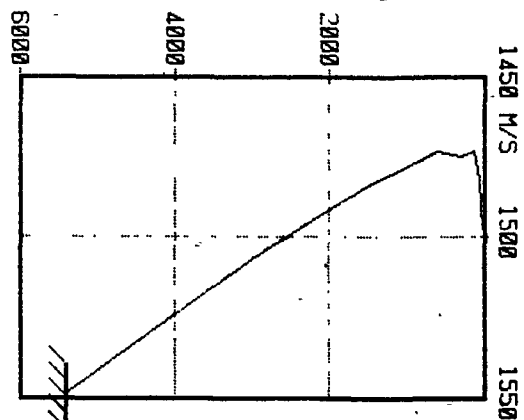
DB LOSS



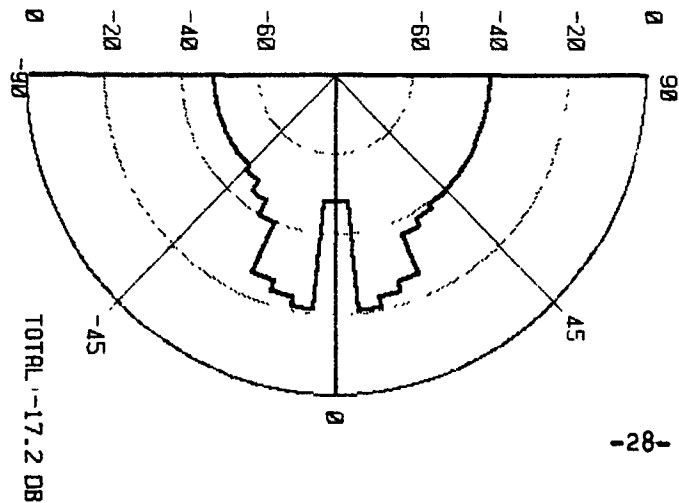
ARRIVAL ANGLE

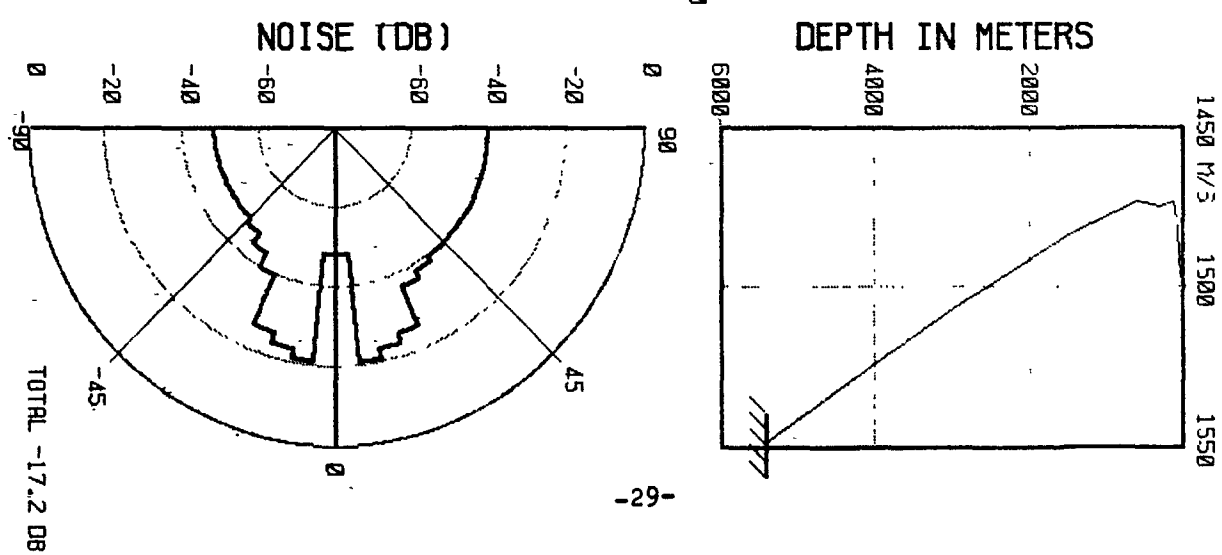
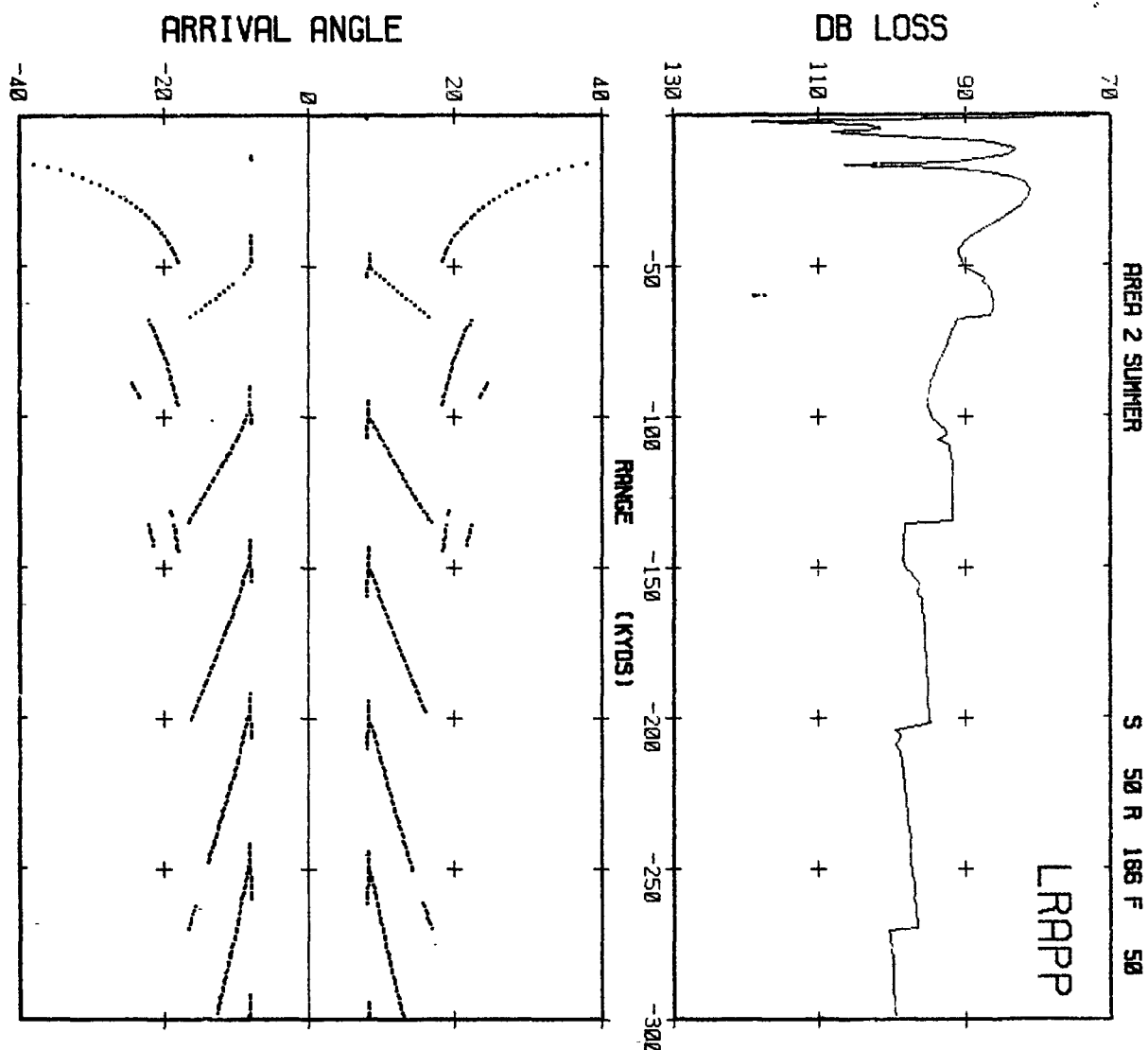


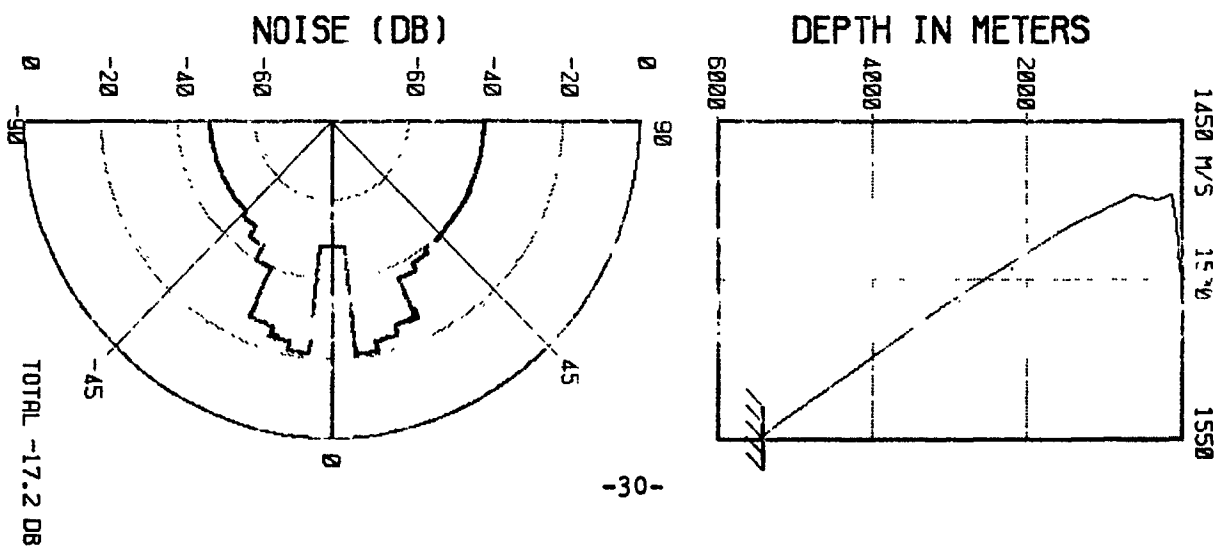
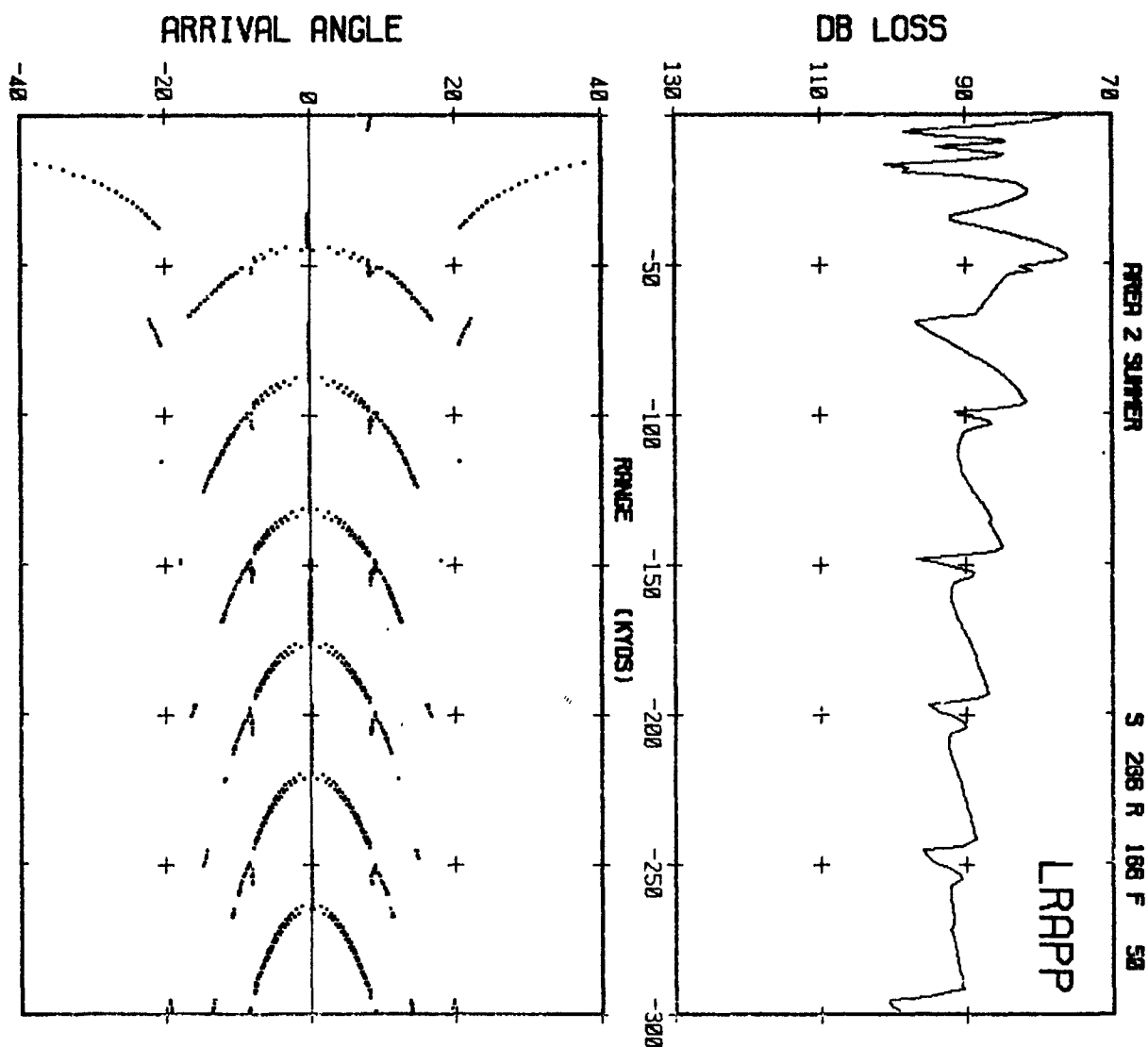
DEPTH IN METERS



NOISE (DB)

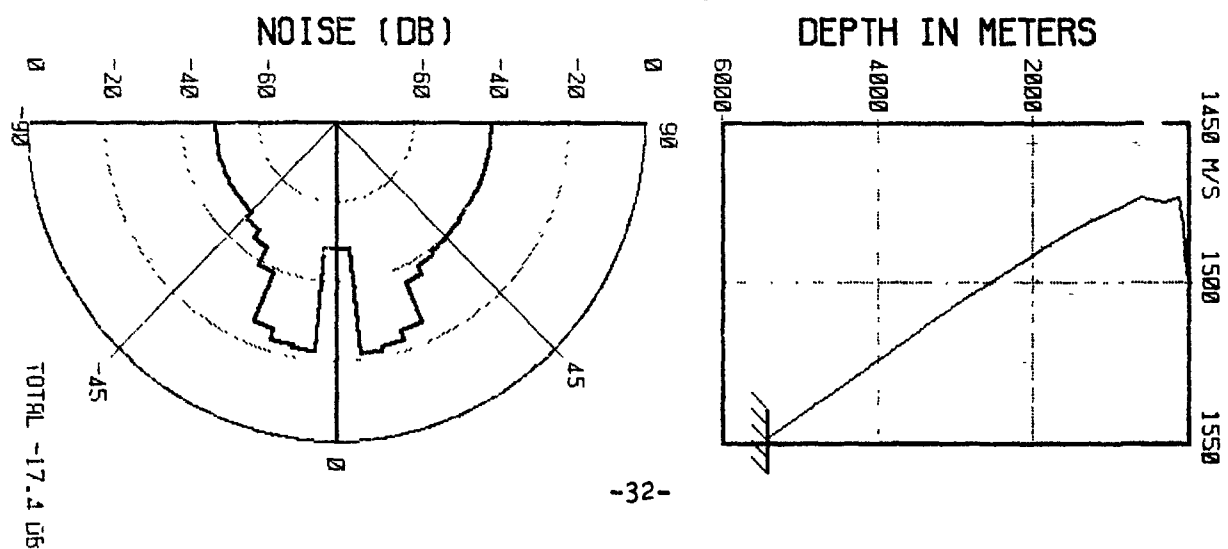
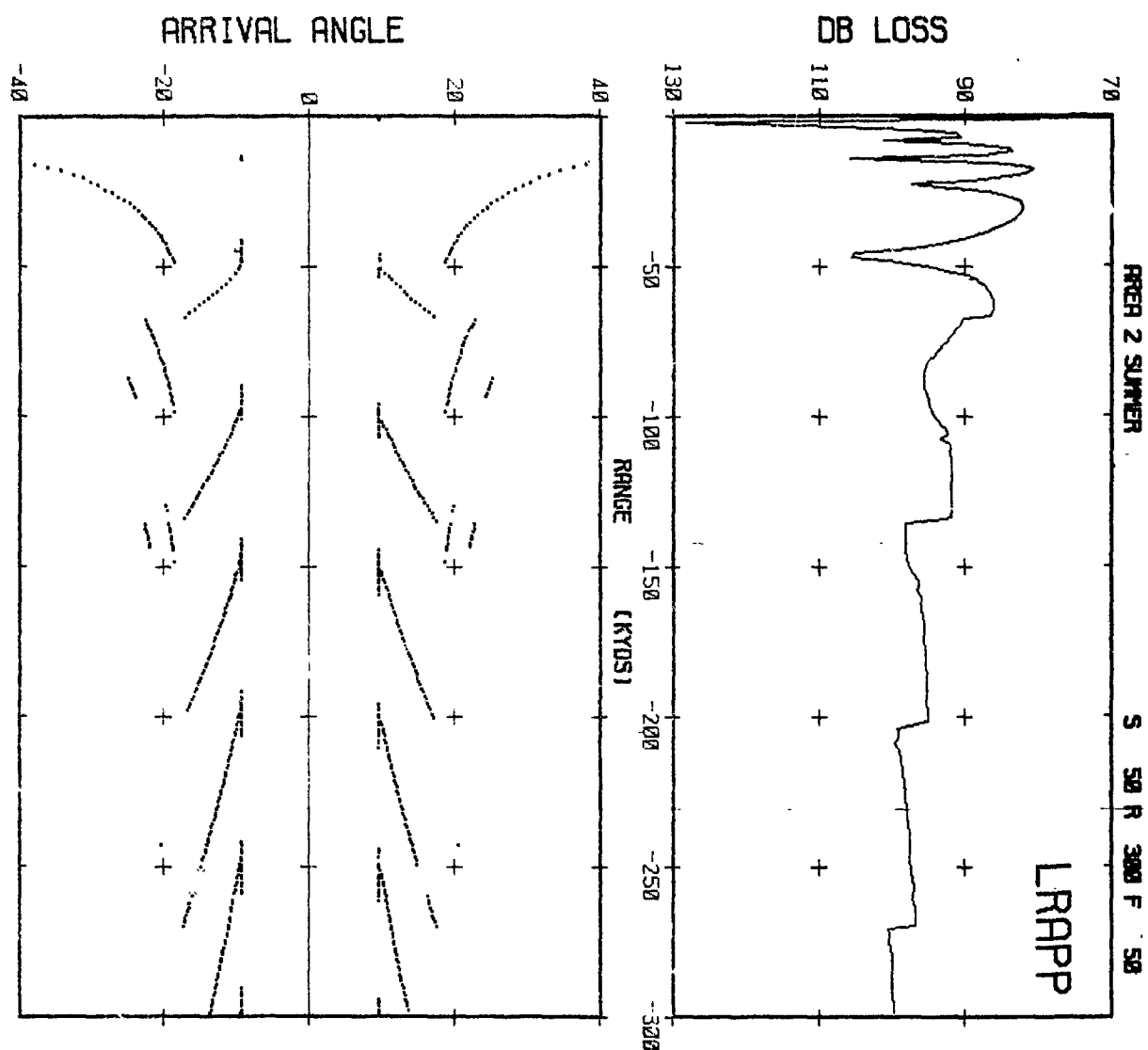


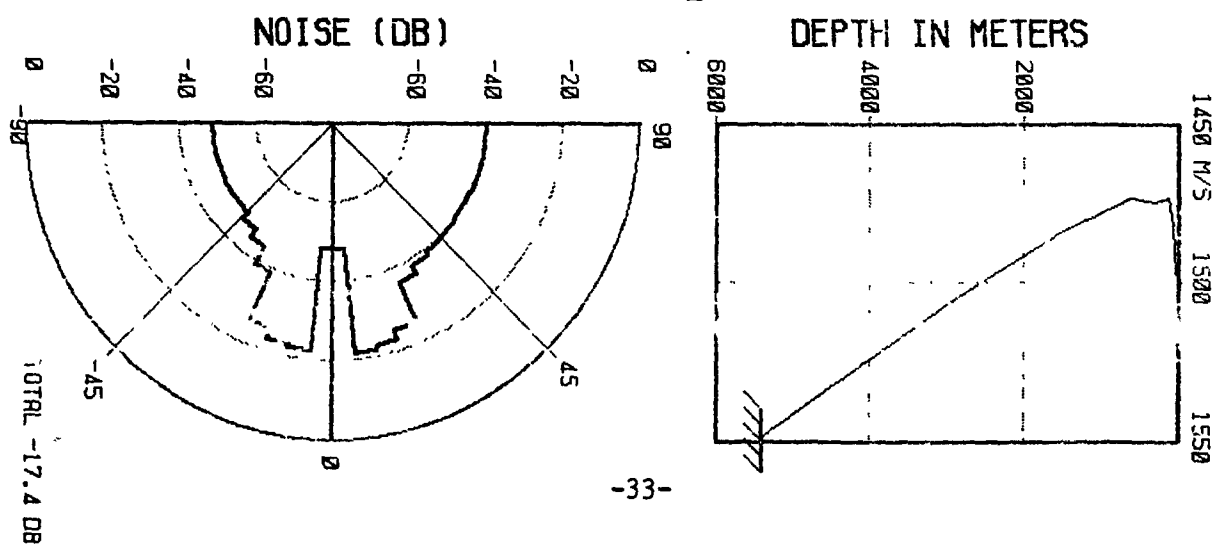
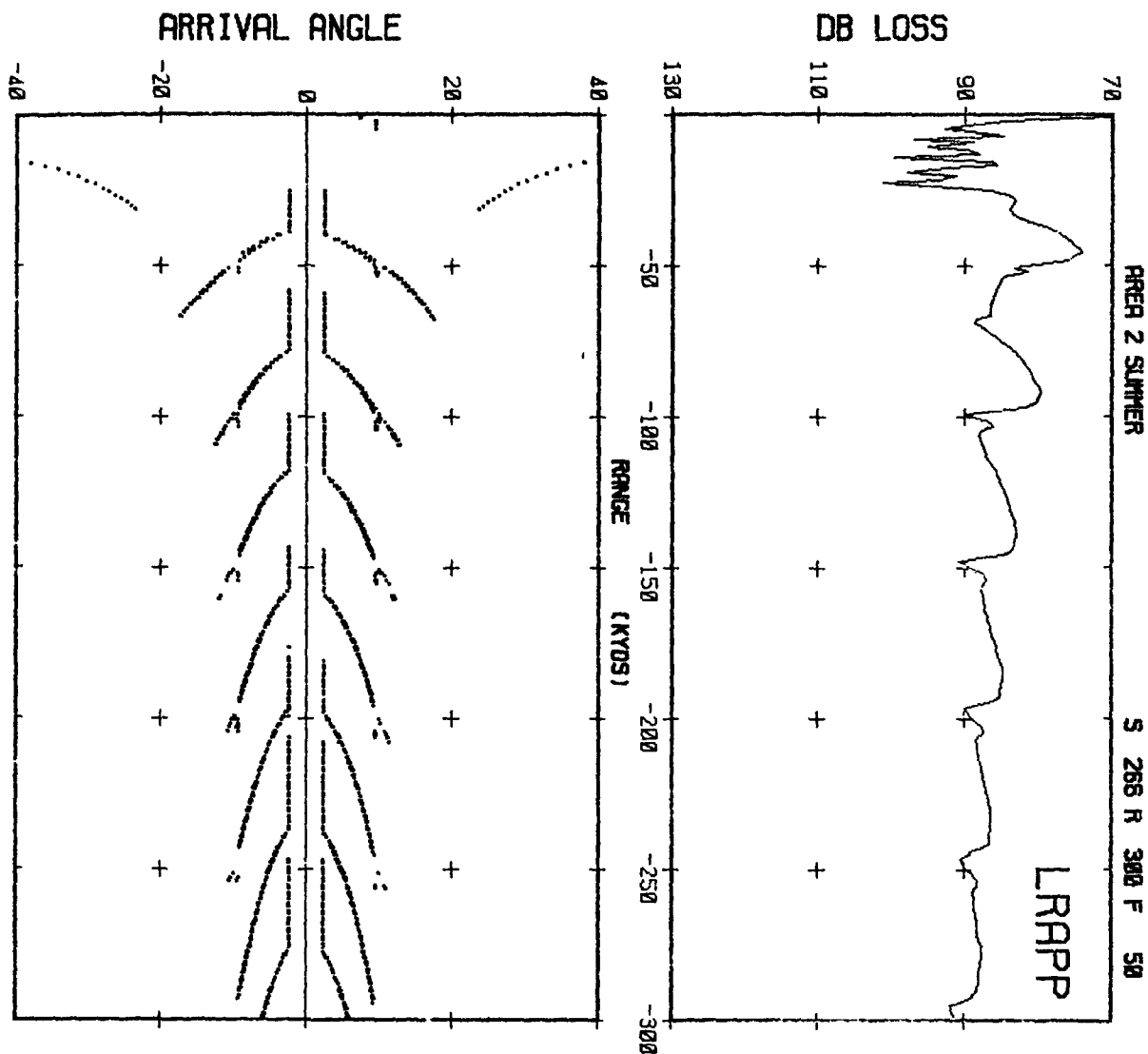






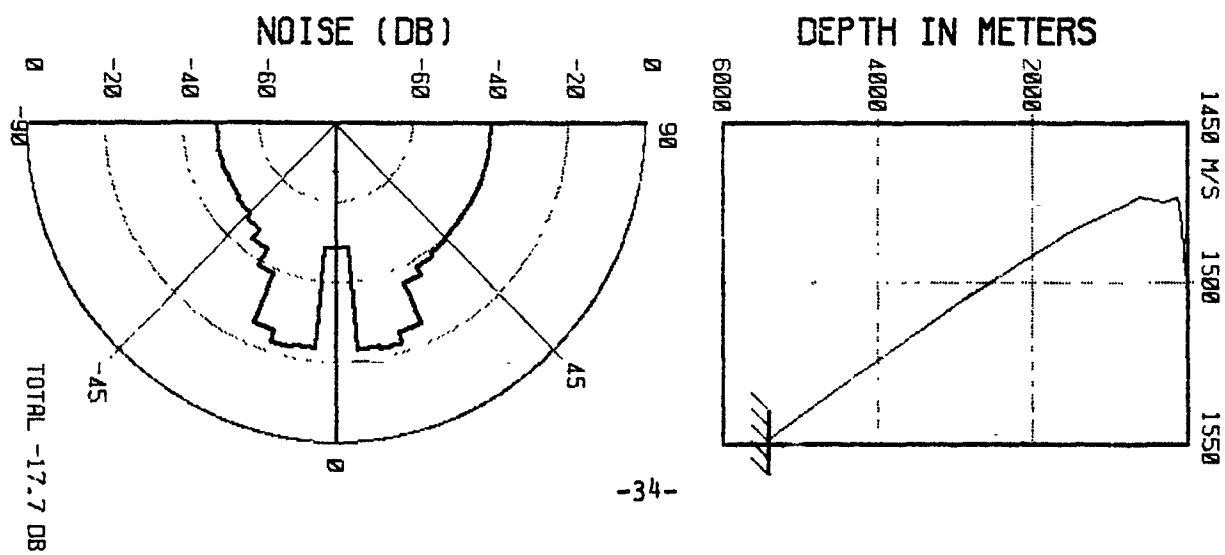
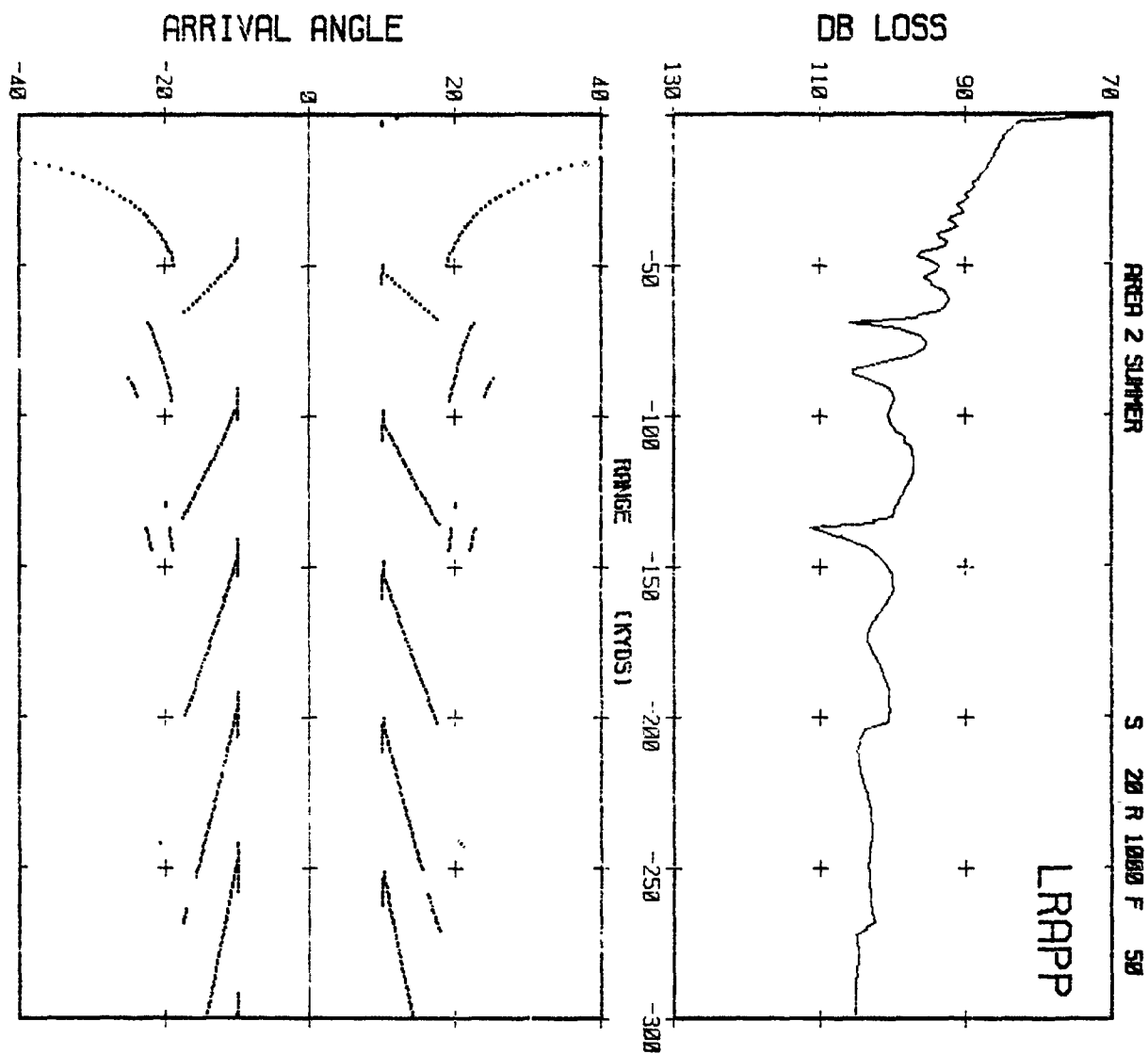






-33-

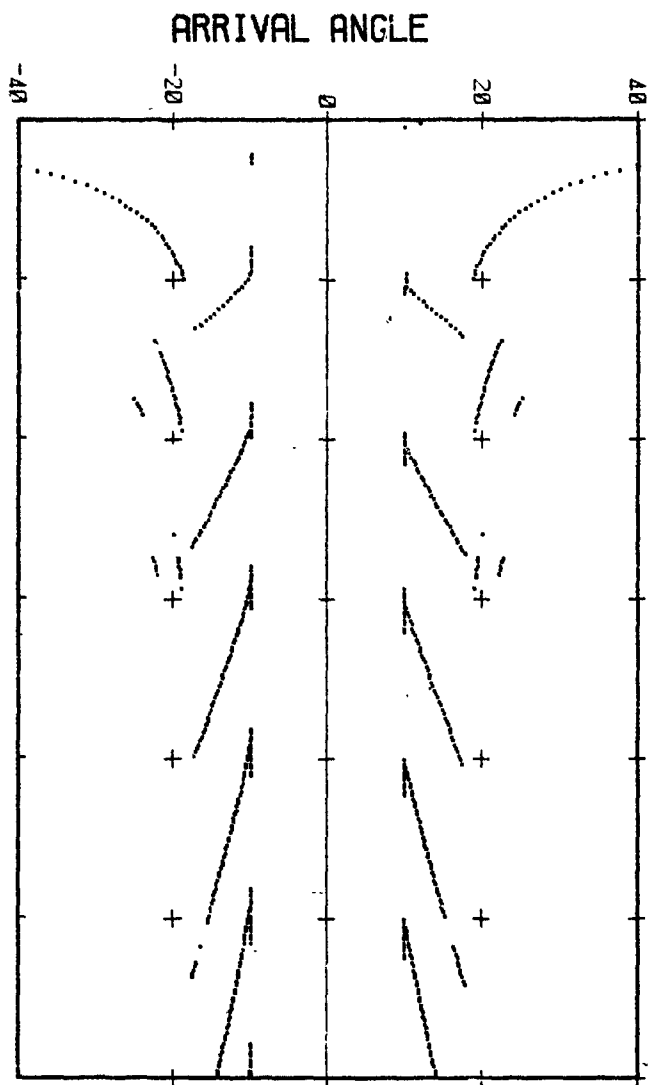
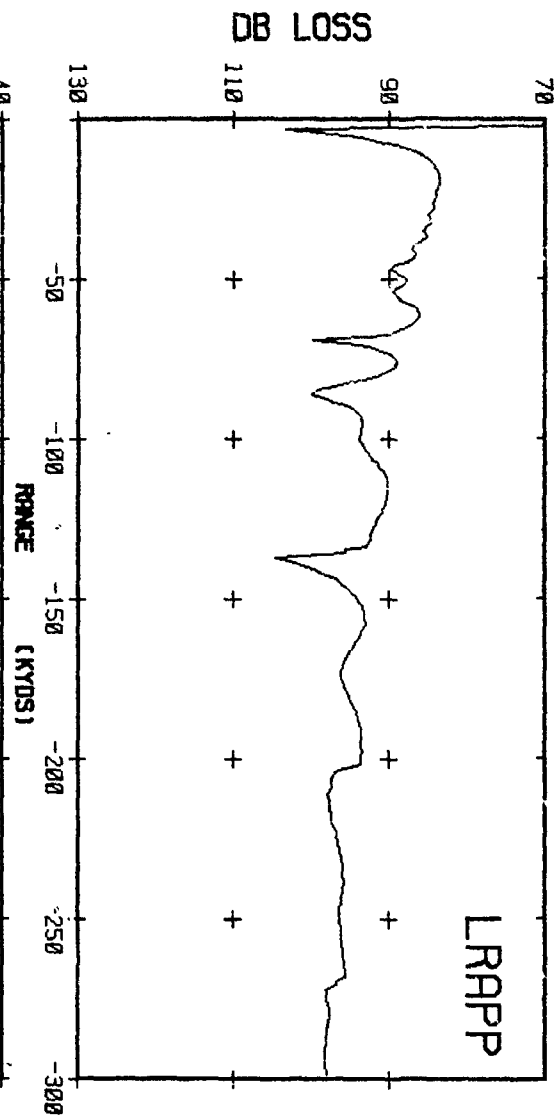
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 permit fully legible reproduction



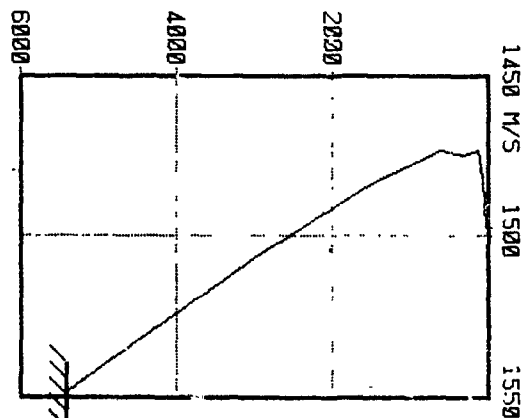
AREA 2 SUMMER

S 50 R 1000 F 50

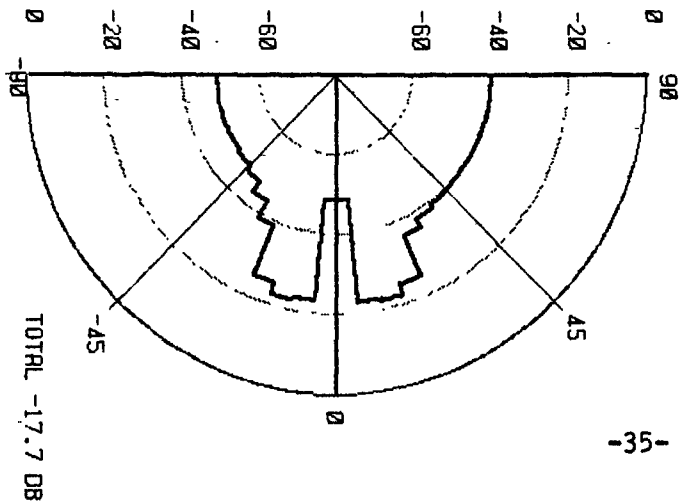
LRAPP

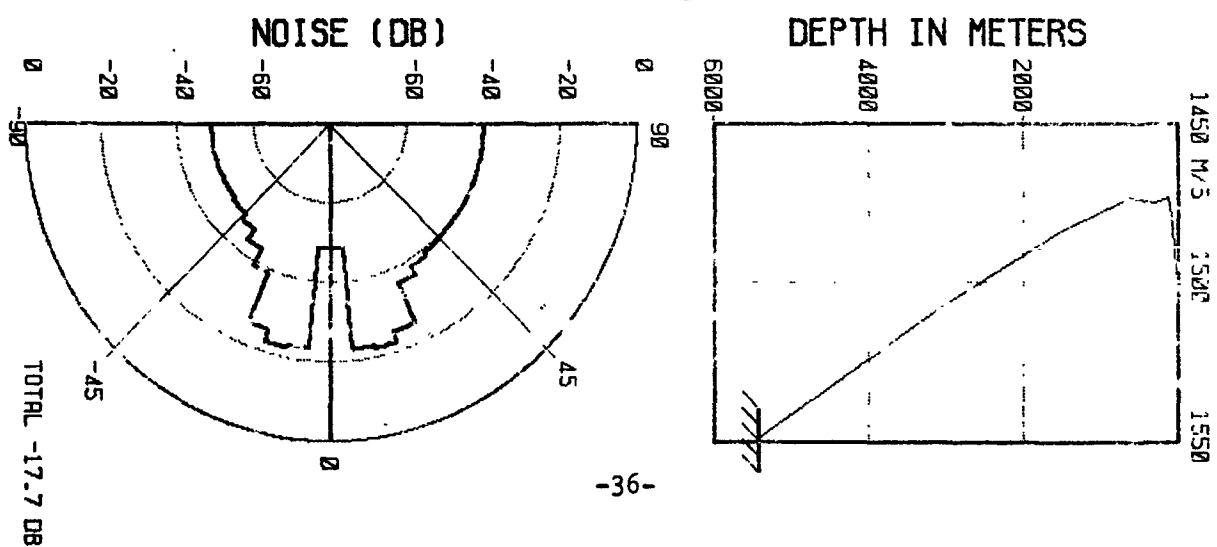
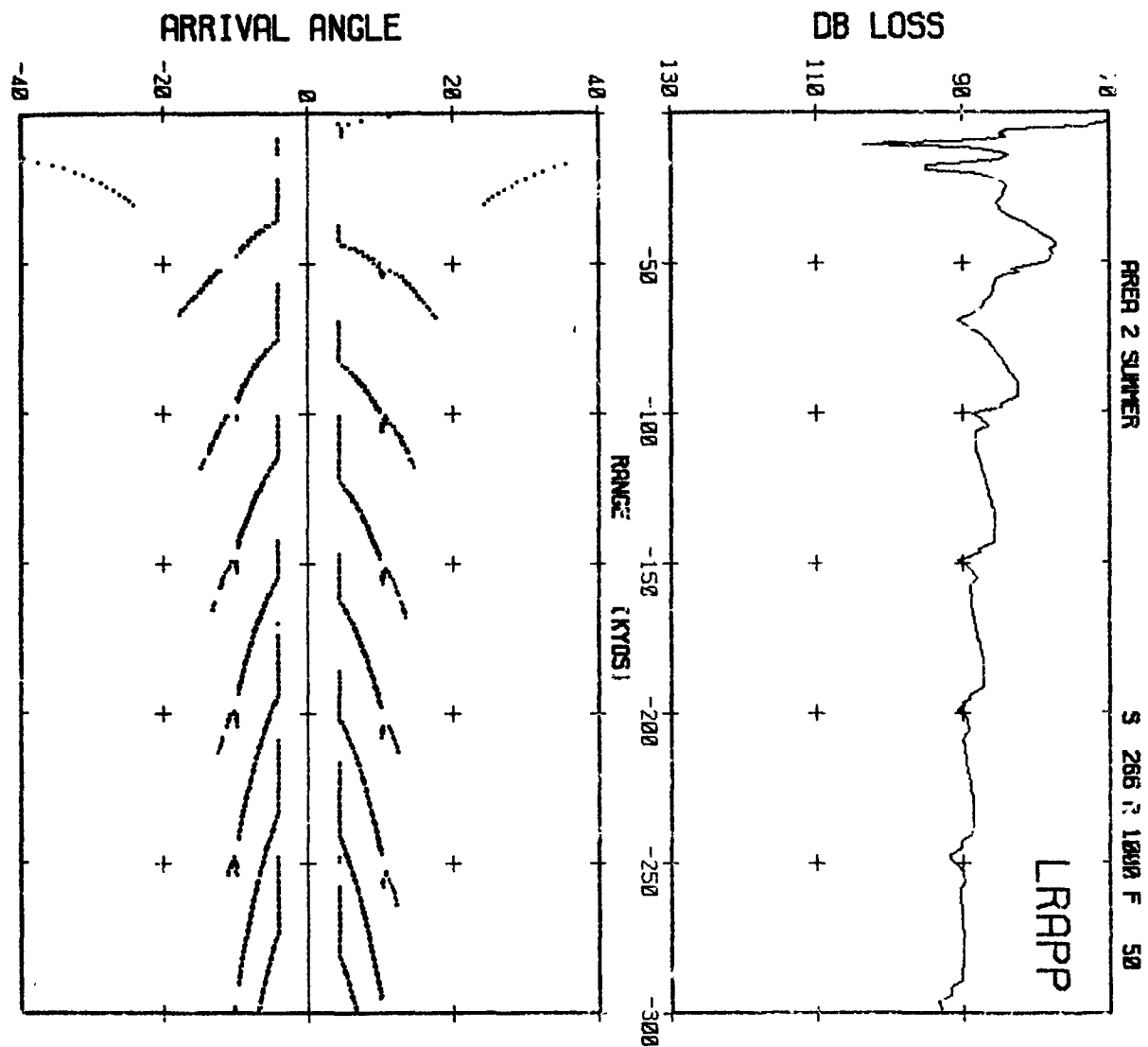


DEPTH IN METERS



NOISE (DB)



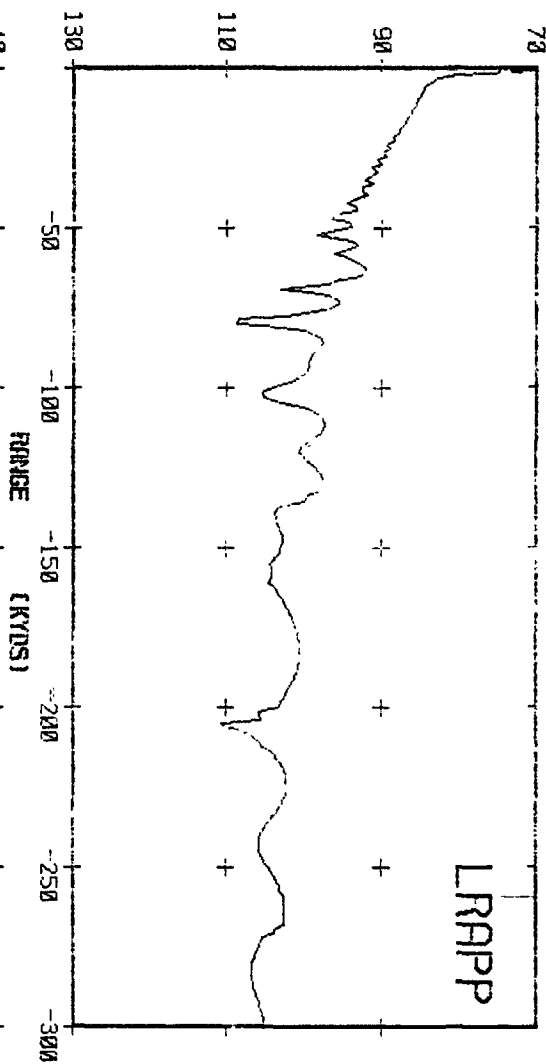


ARRR 2 SUMMER

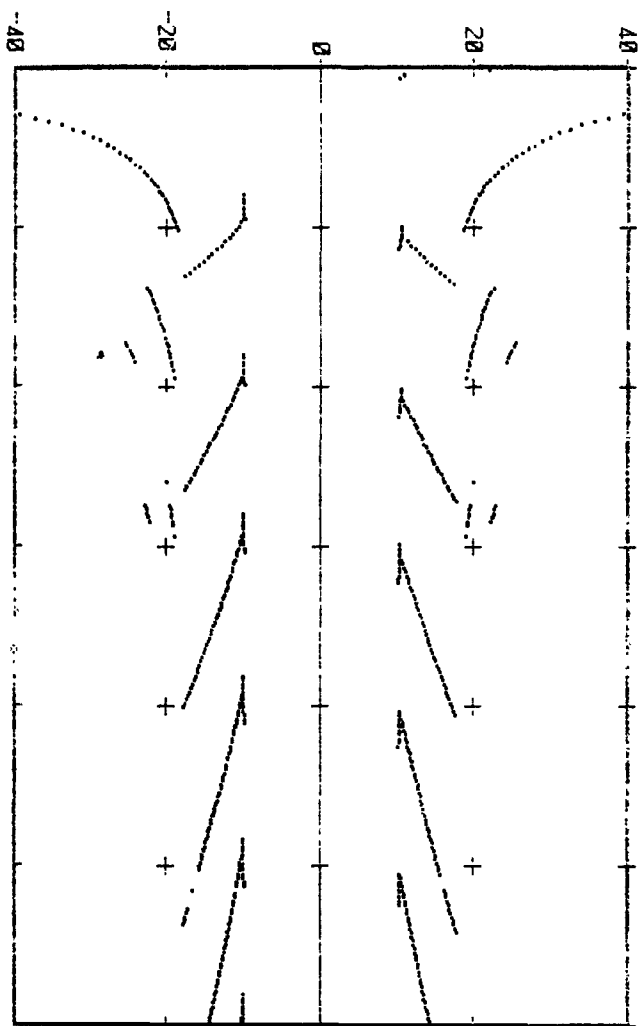
S 20 R 1500 F 50

1450 M/S 1500 1550

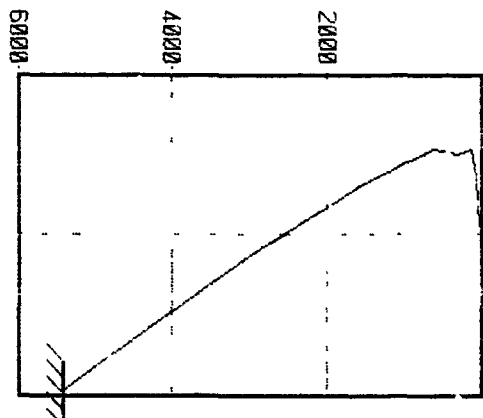
DB LOSS



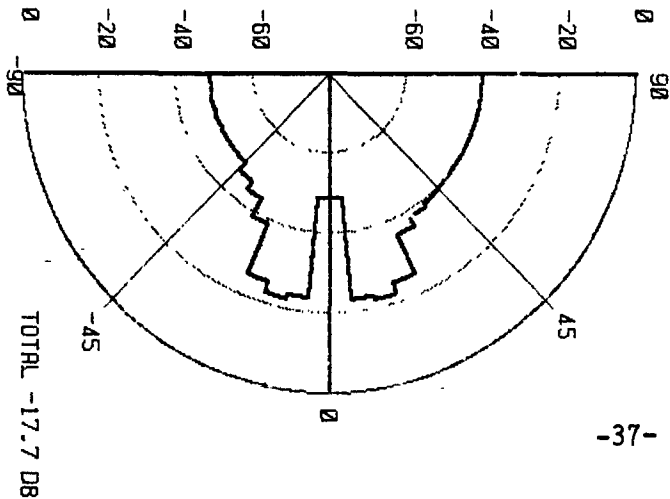
ARRIVAL ANGLE

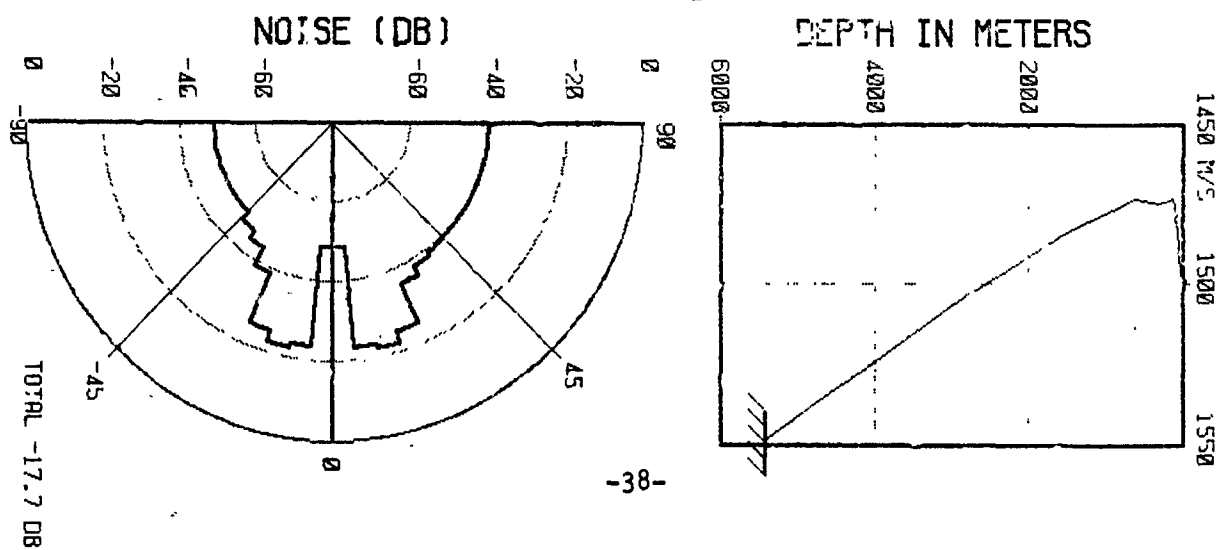
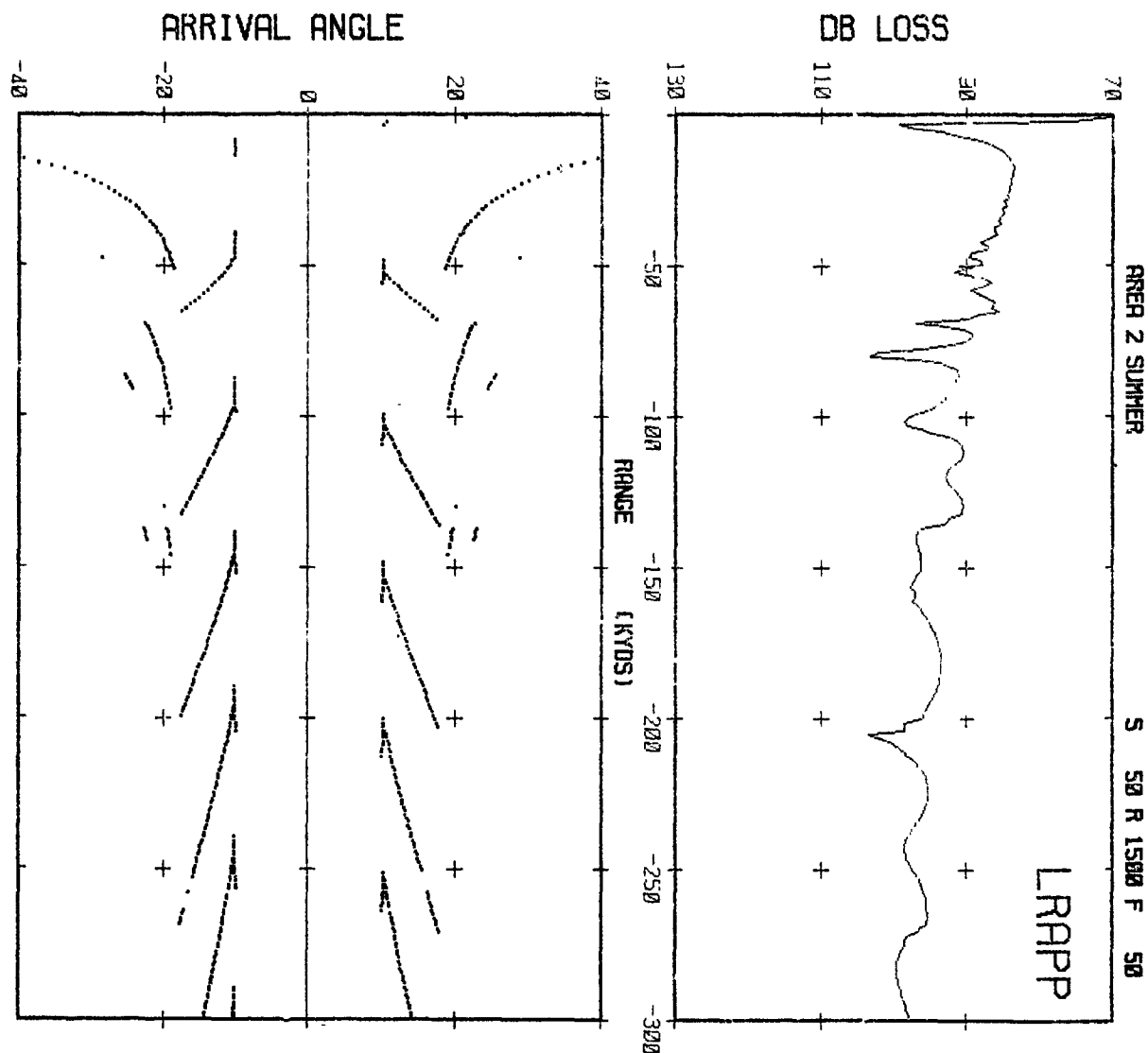


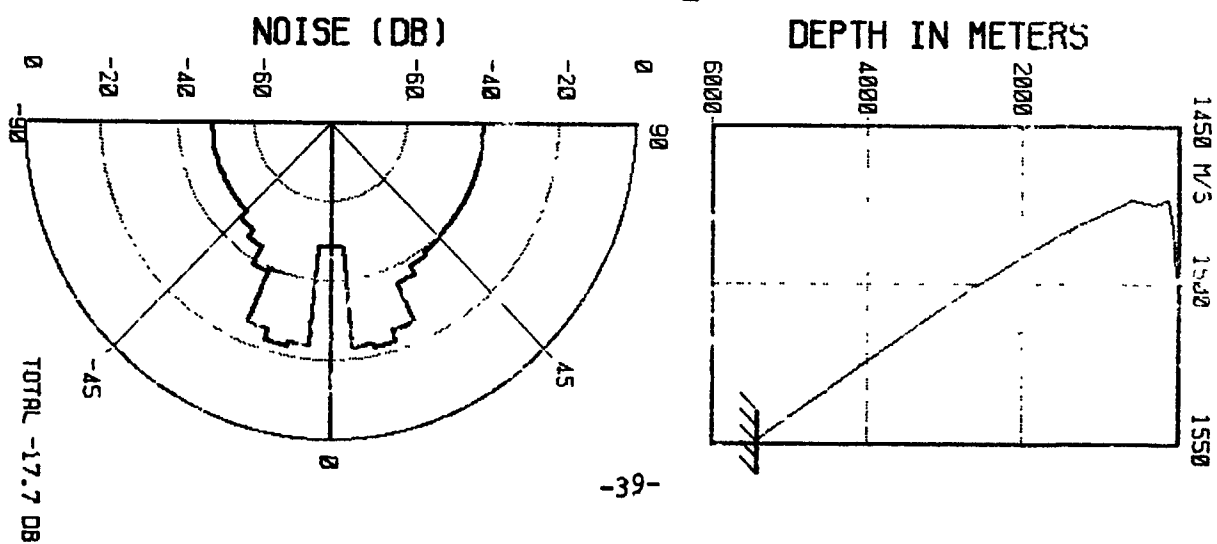
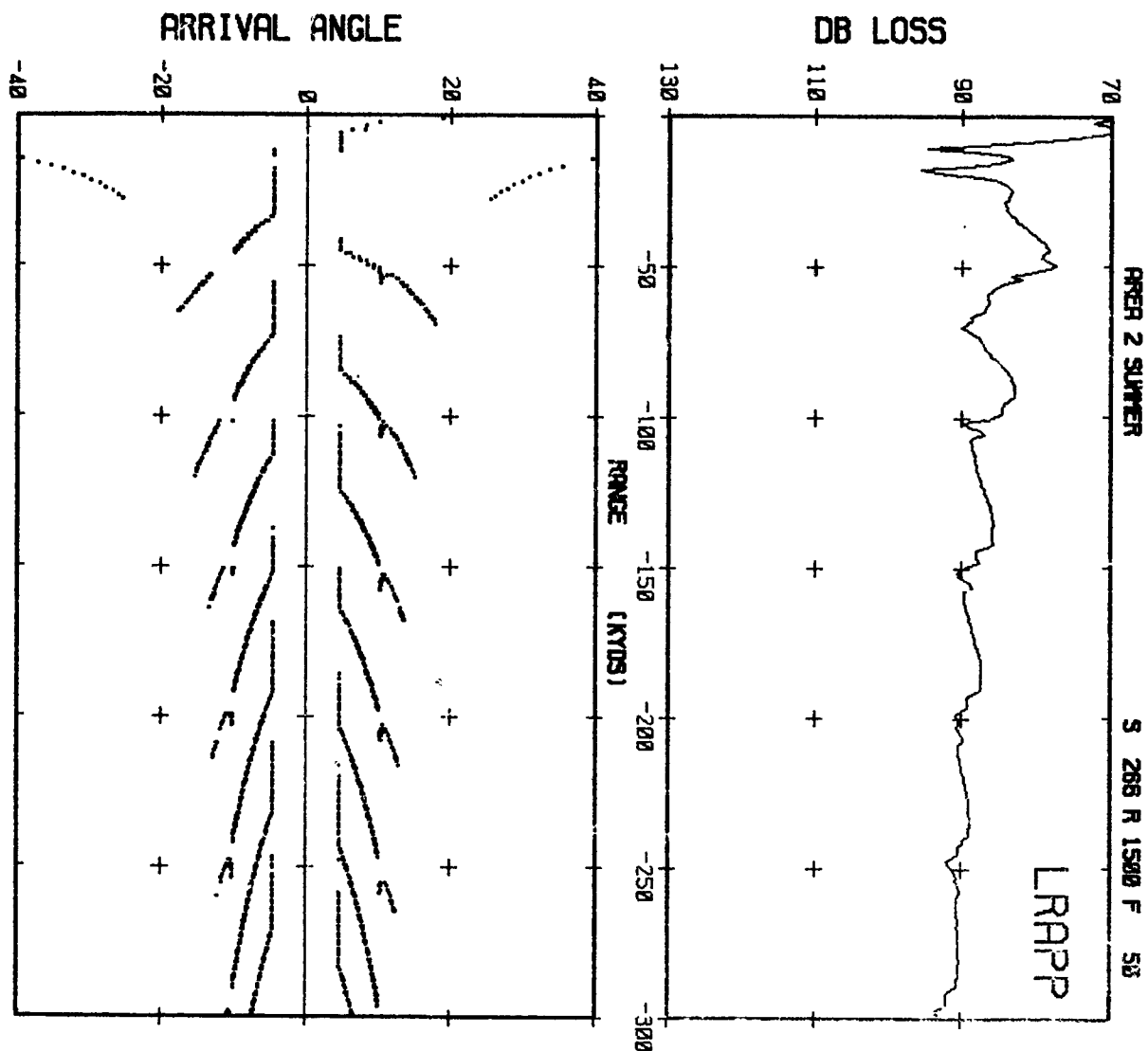
DEPTH IN METERS



NOISE (DB)







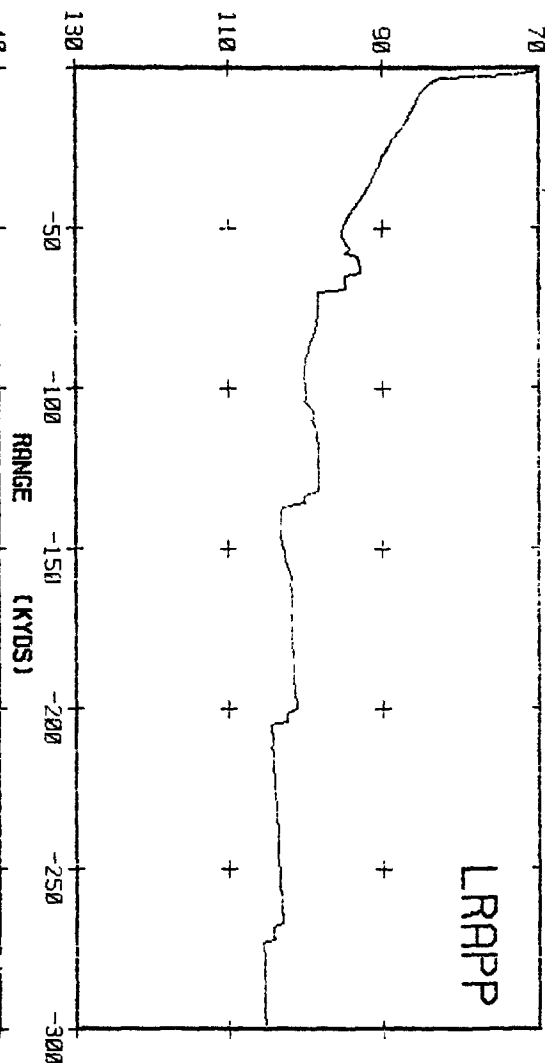


AREA 2 SUMMER

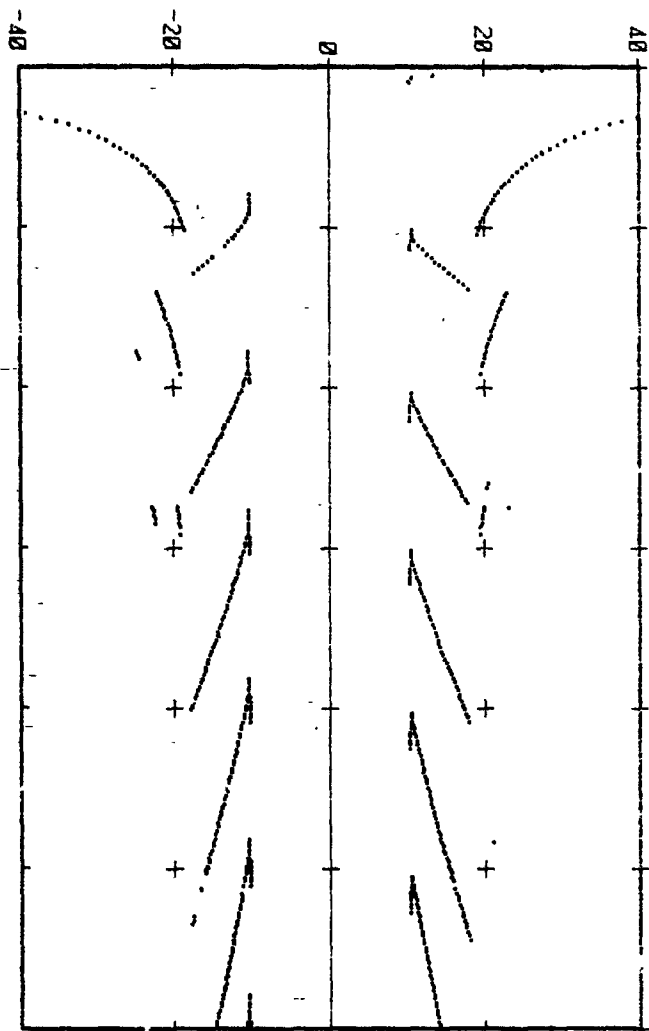
S 20 R 1968 F 50

LRAPP

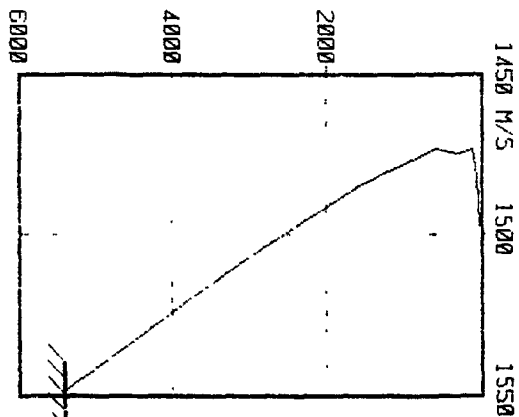
DB LOSS



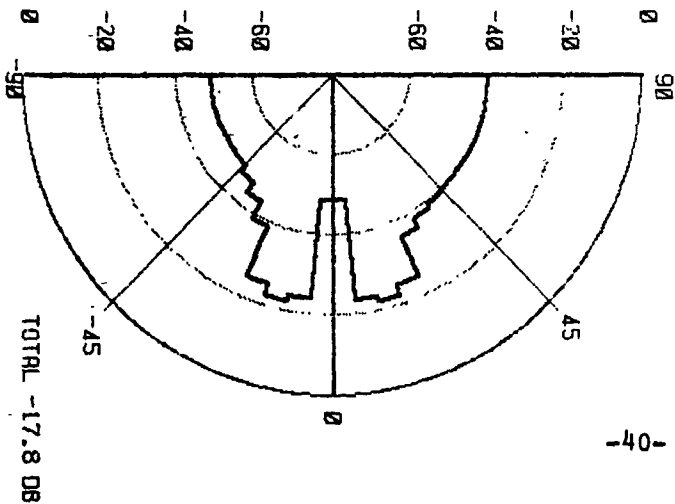
ARRIVAL ANGLE



DEPTH IN METERS



NOISE (DB)

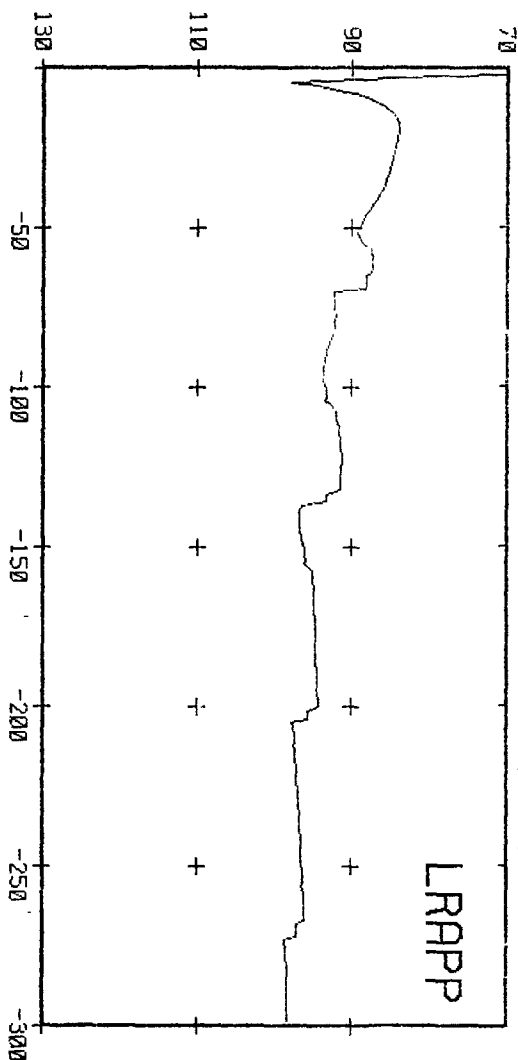


AREA 2 SUMMER

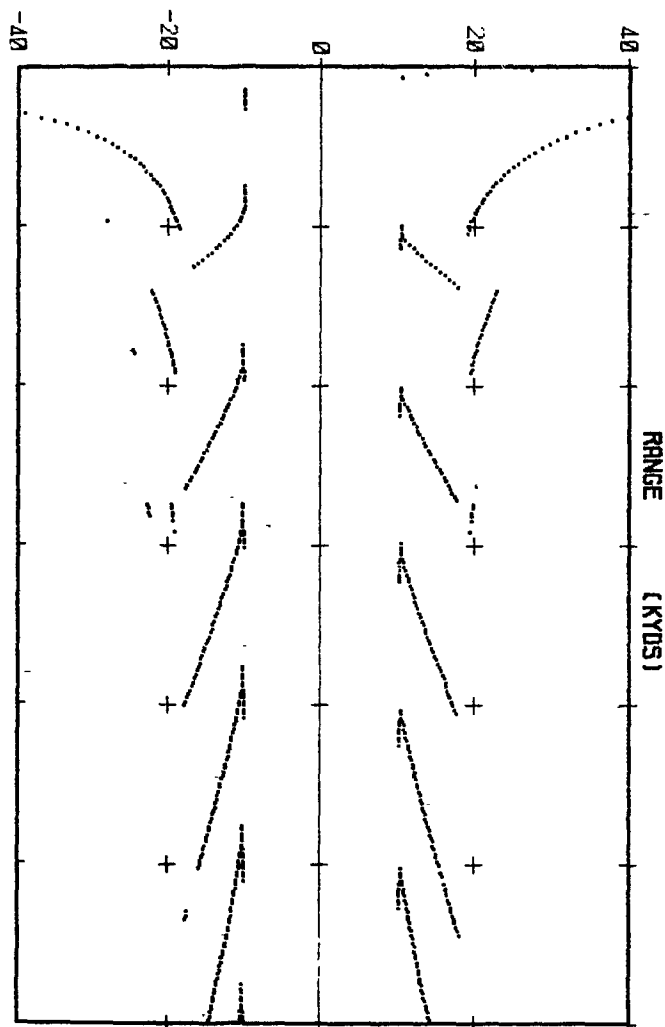
S 50 R 1968 F 50

LRAPP

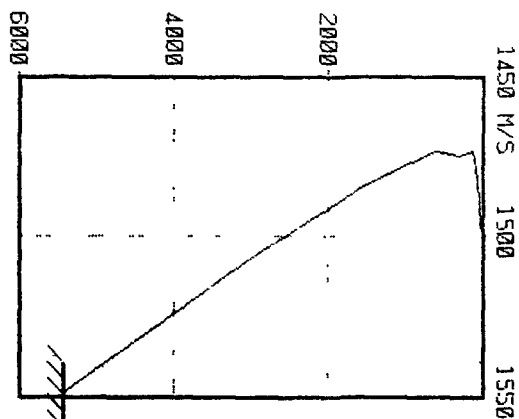
DB LOSS



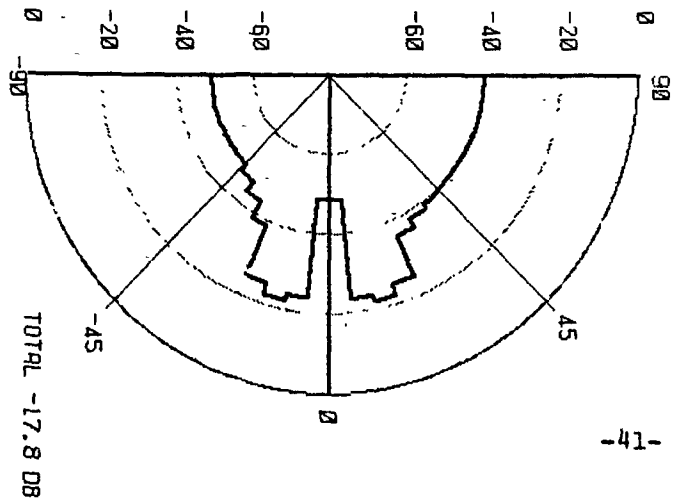
ARRIVAL ANGLE



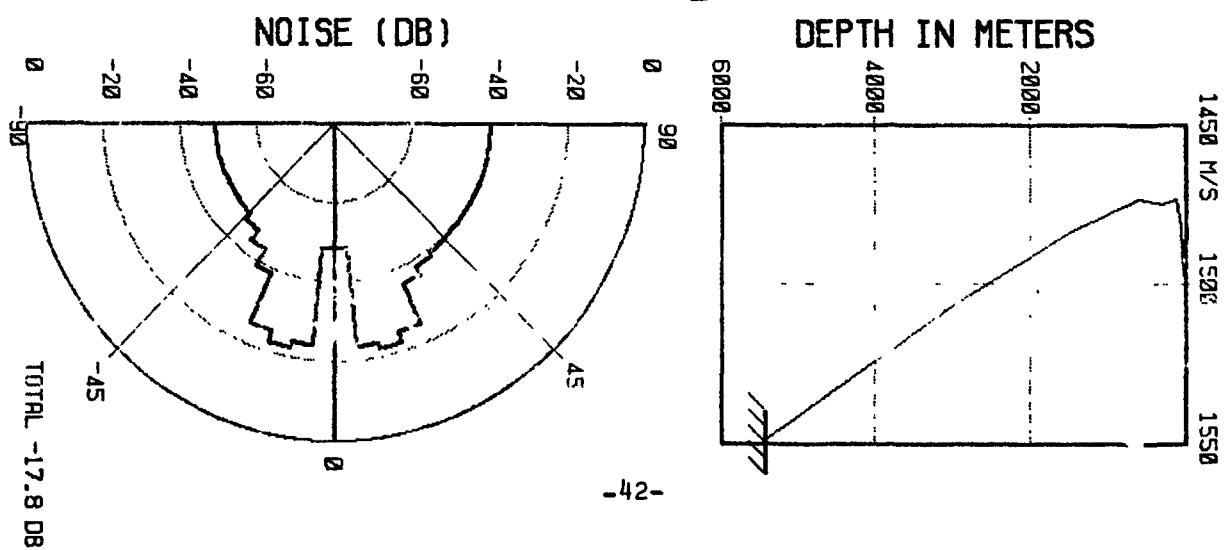
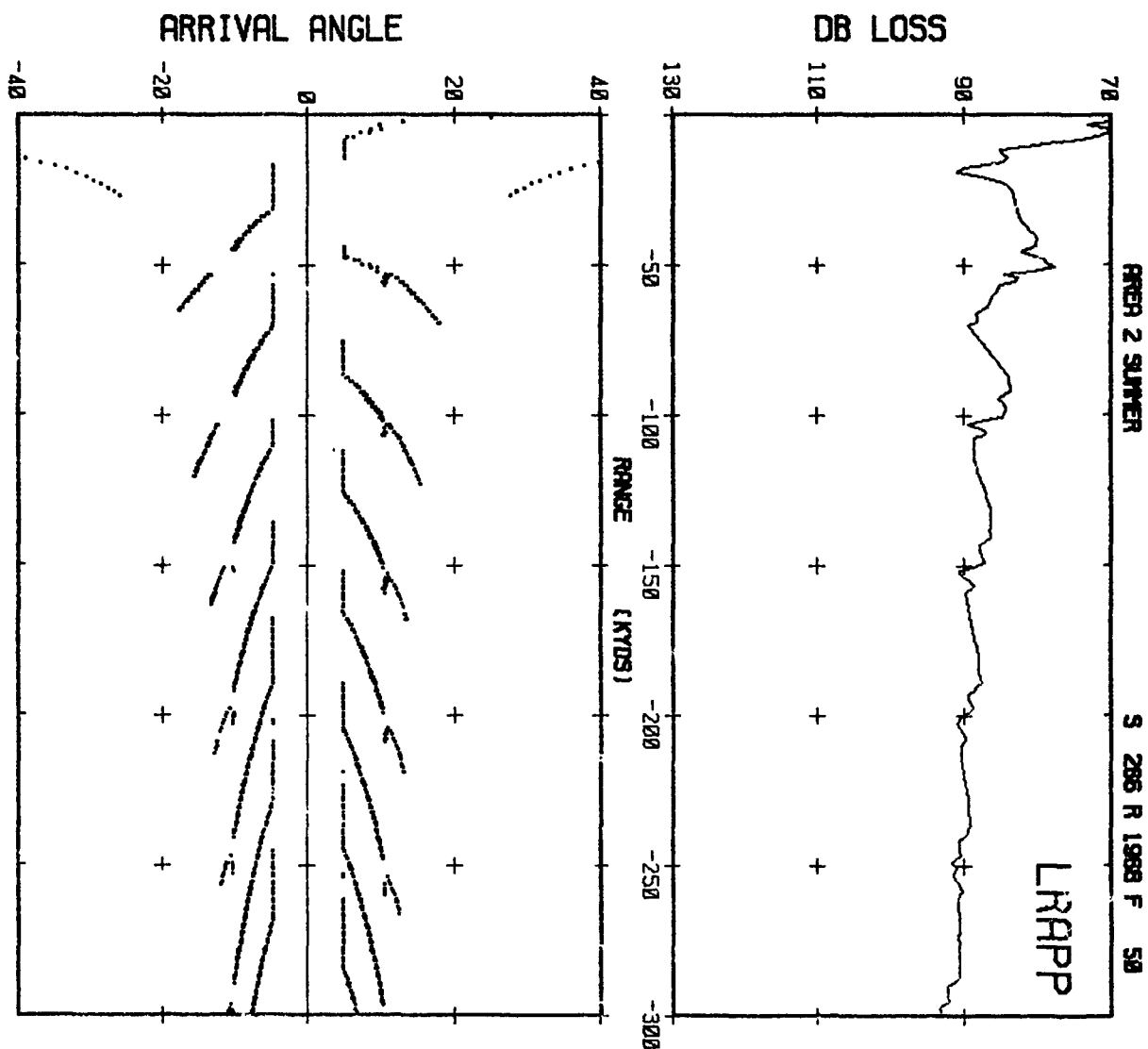
DEPTH IN METERS



NOISE (DB)



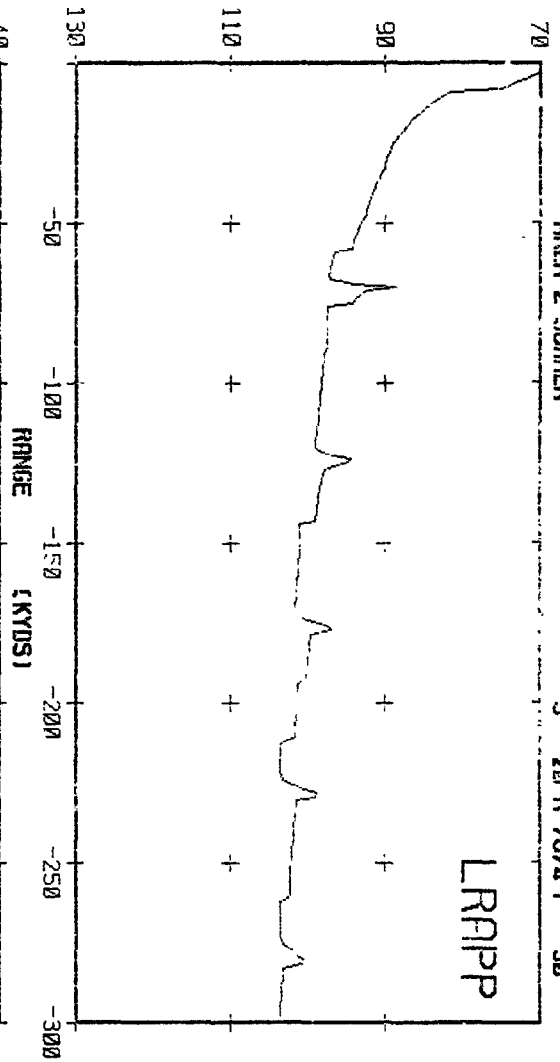
-41-



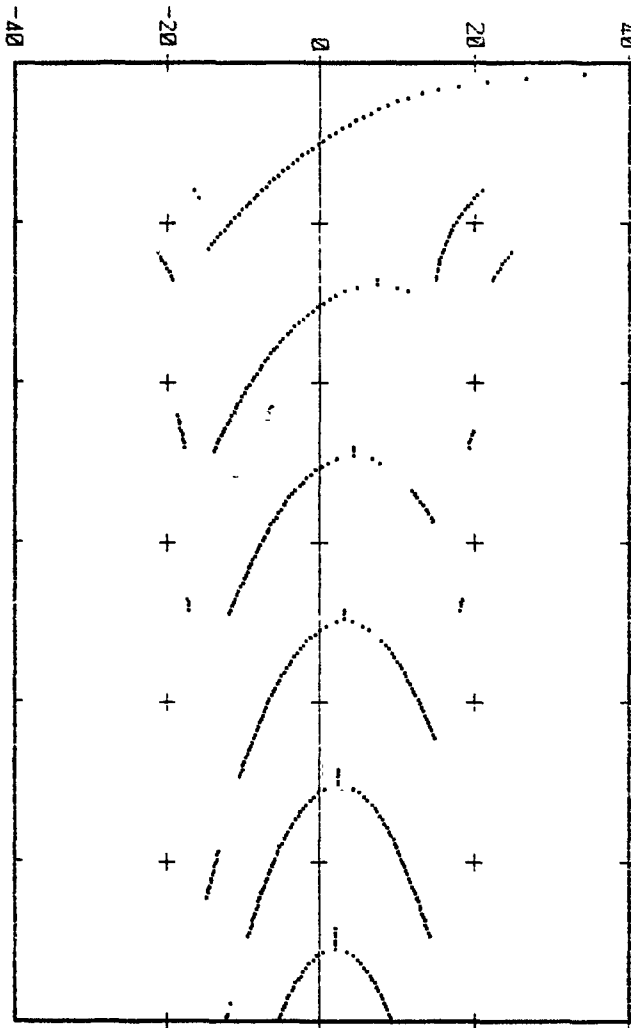
AREA 2 SUMMER

S 20 R 7874 F 50

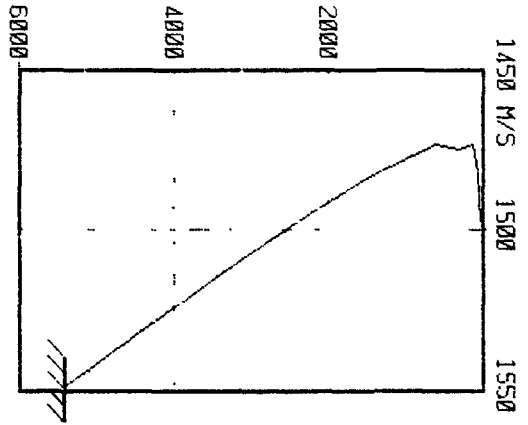
DB LOSS



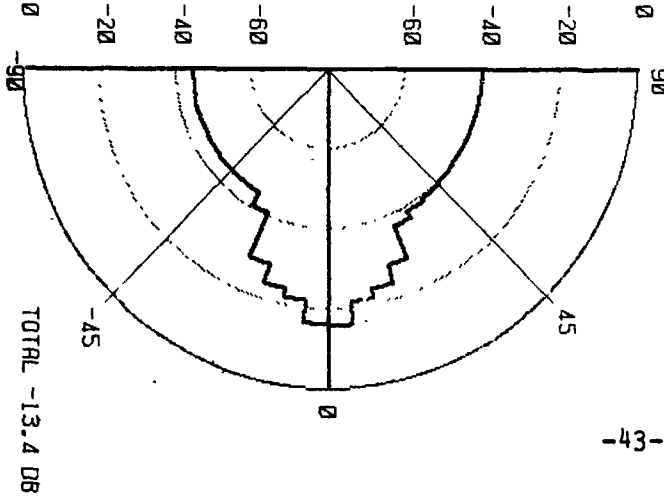
ARRIVAL ANGLE

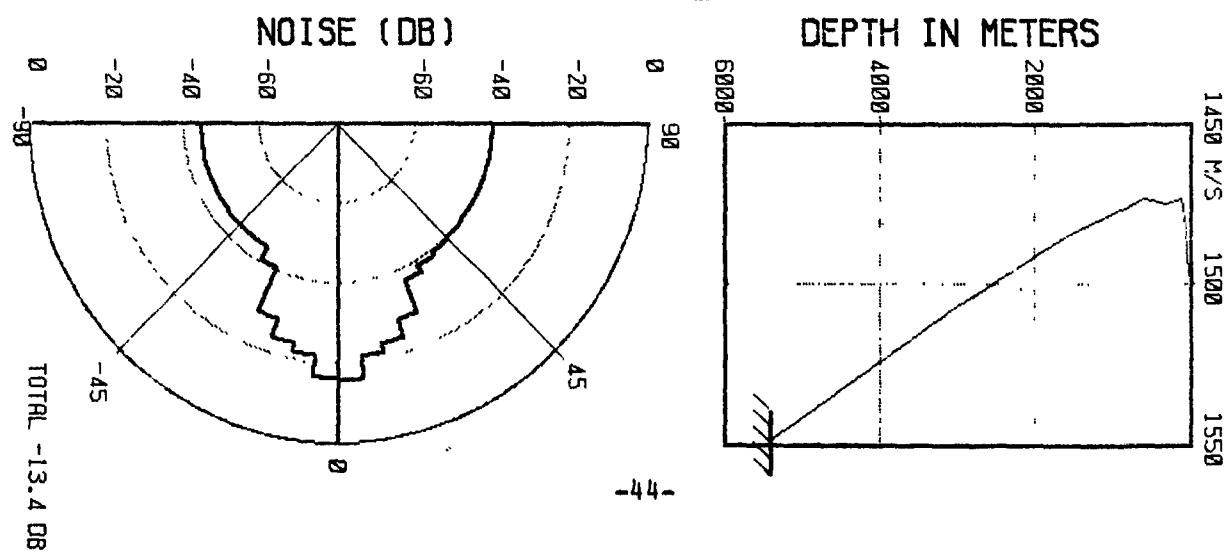
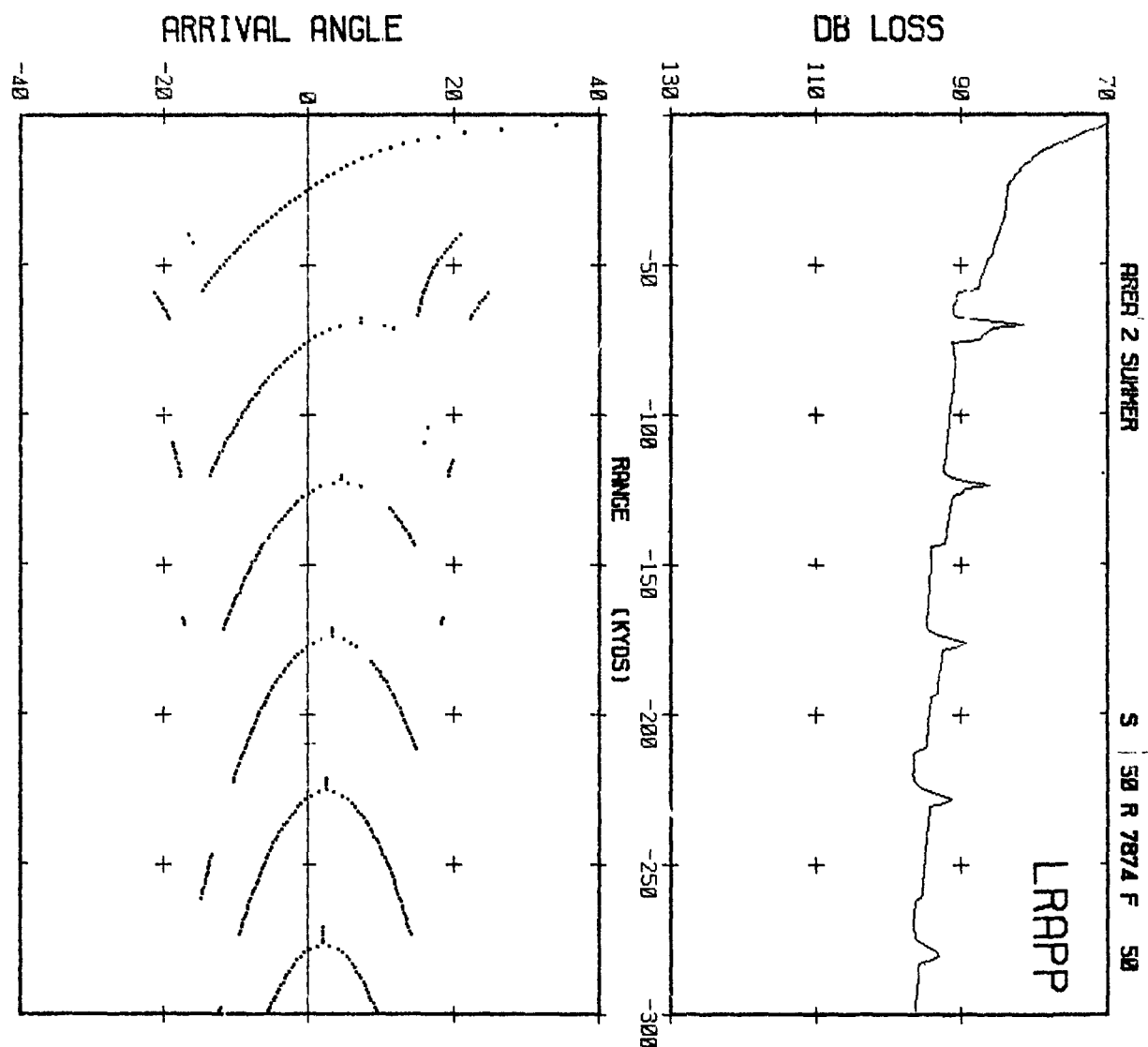


DEPTH IN METERS



NOISE (DB)



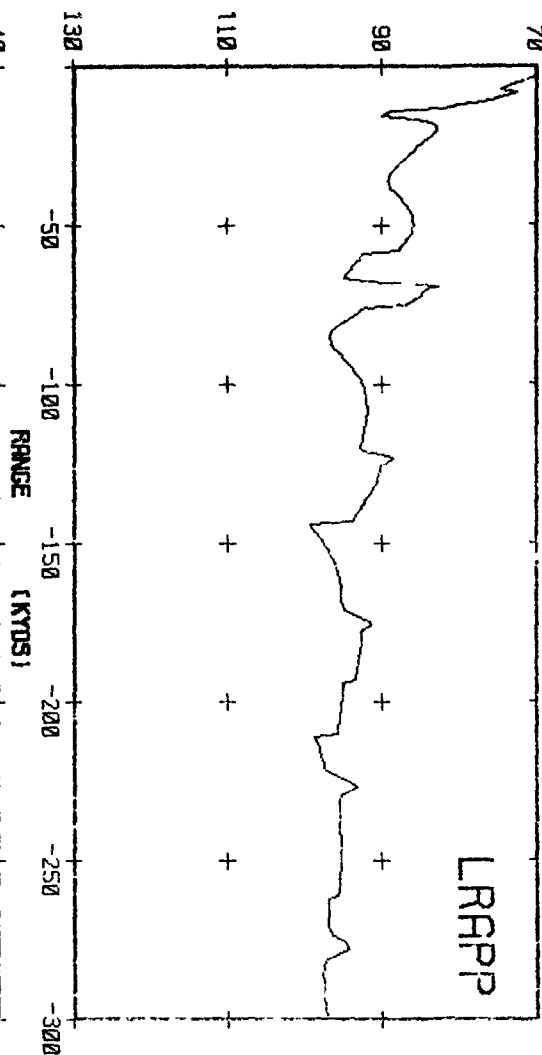


PRER 2 SUMMER

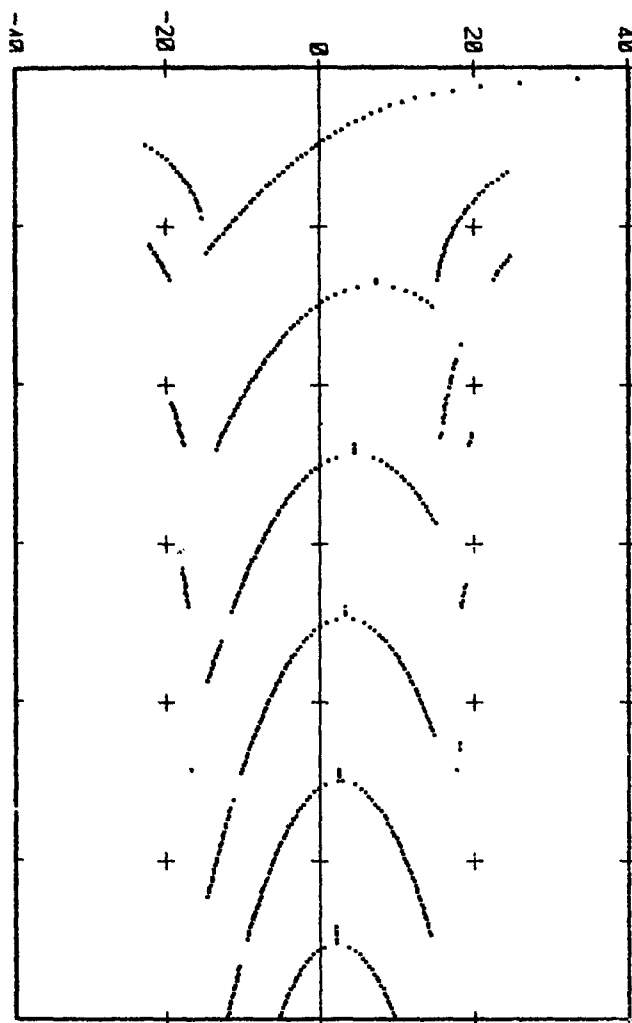
S 266 R 7874 F 50

LRAPP

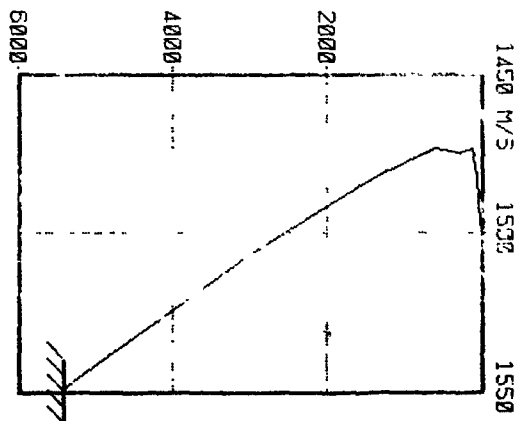
DB LOSS



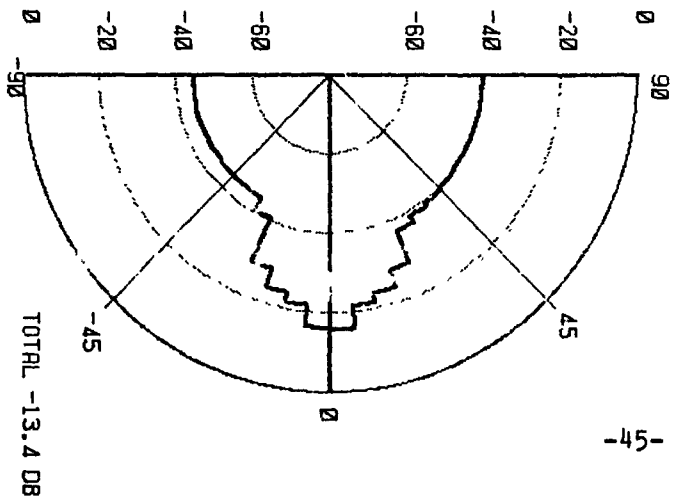
ARRIVAL ANGLE



DEPTH IN METERS



NOISE (DB)

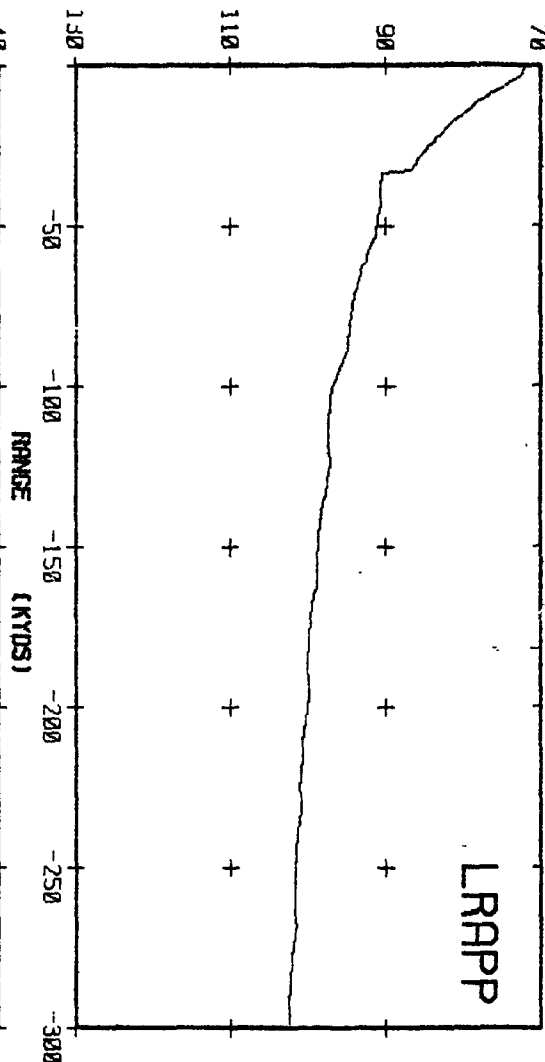


AREA 2 SUMMER

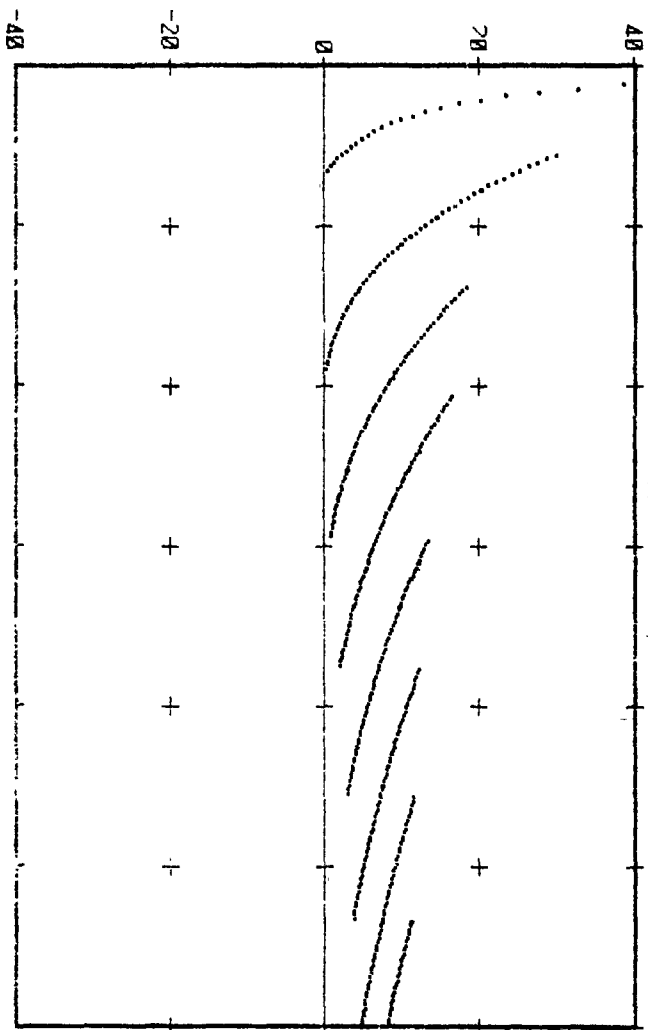
S 20 RI759 F 50

LRAPP

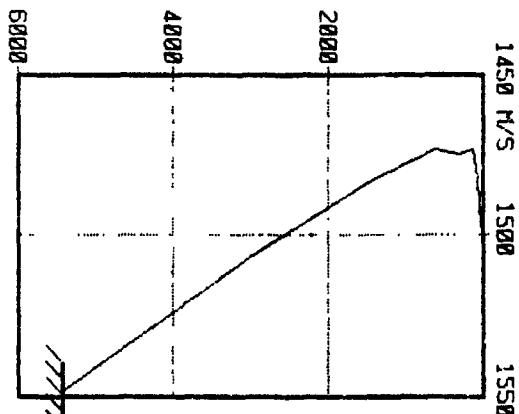
DB LOSS



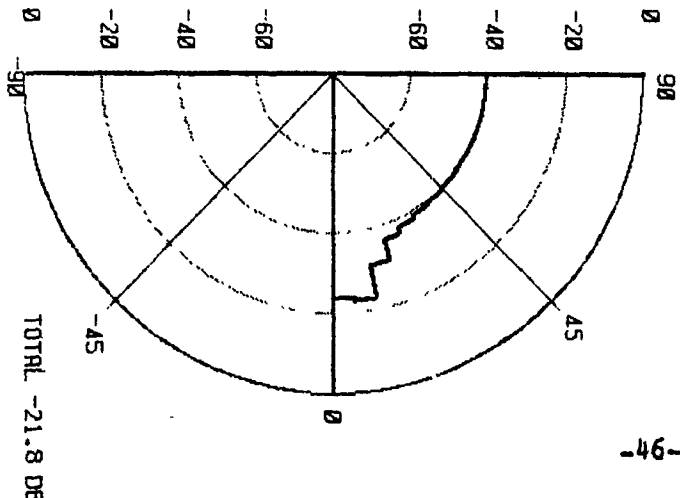
ARRIVAL ANGLE

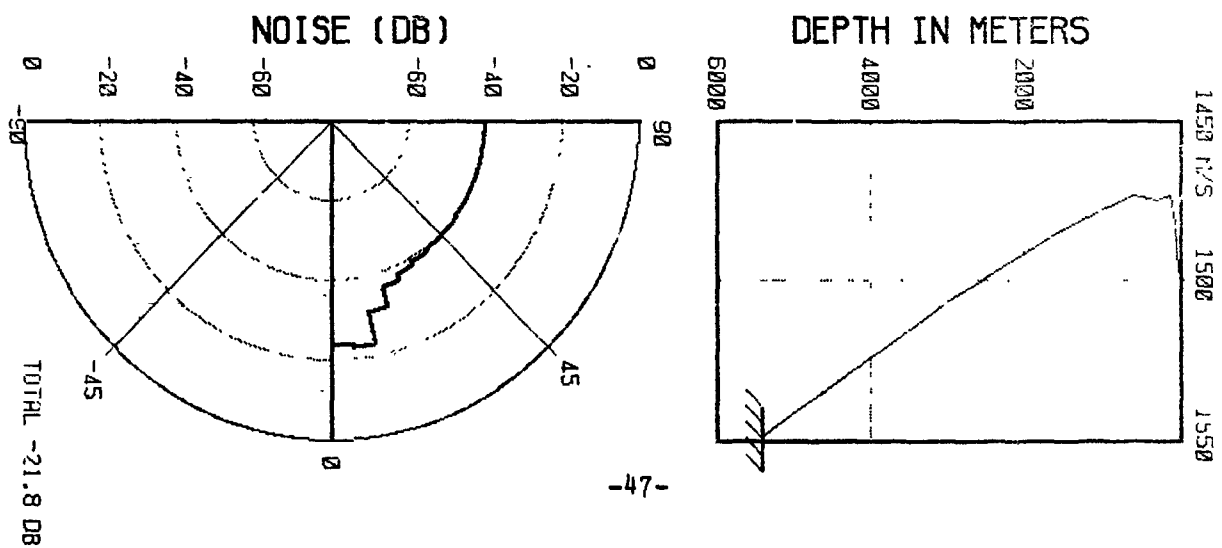
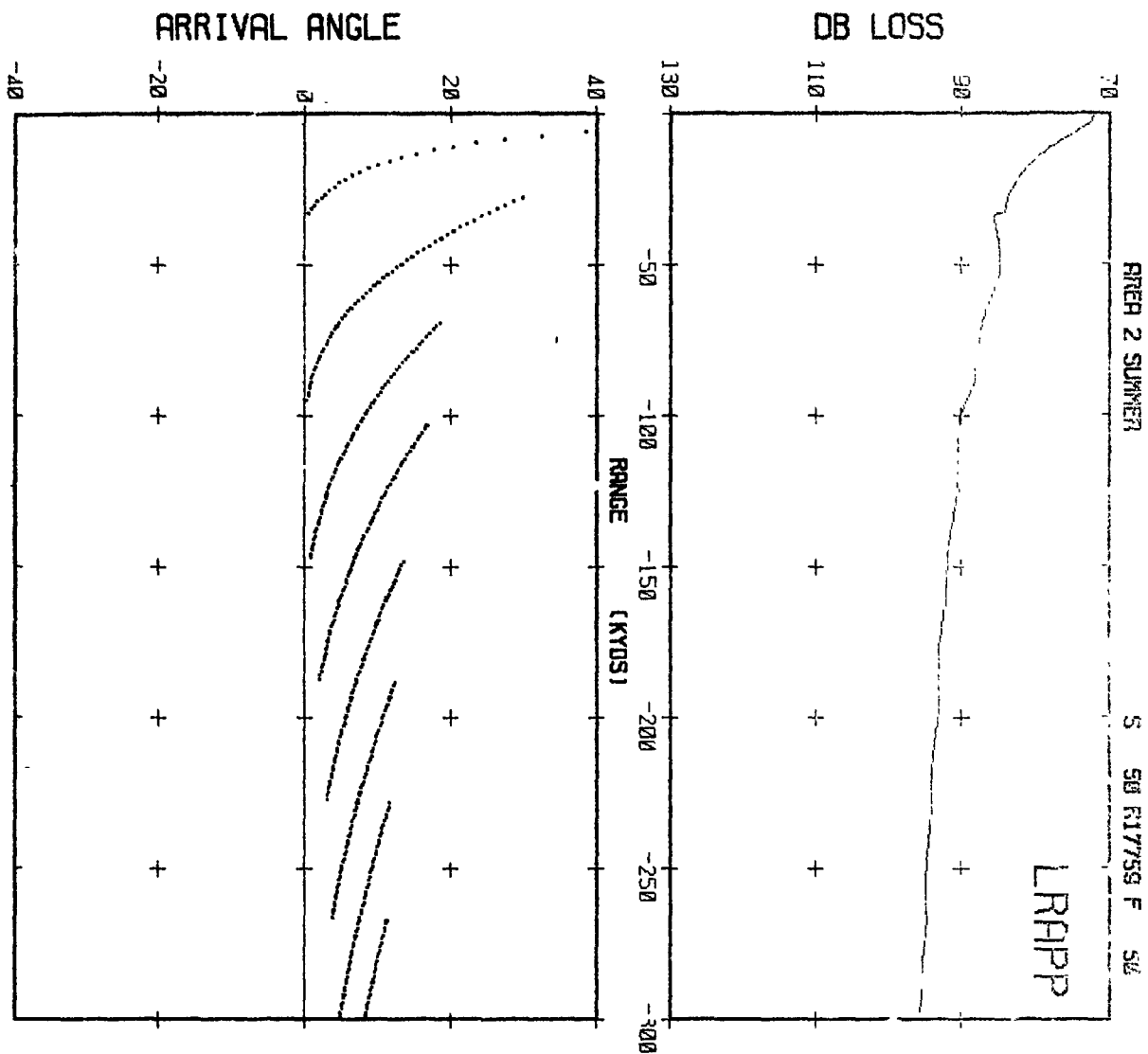


DEPTH IN METERS

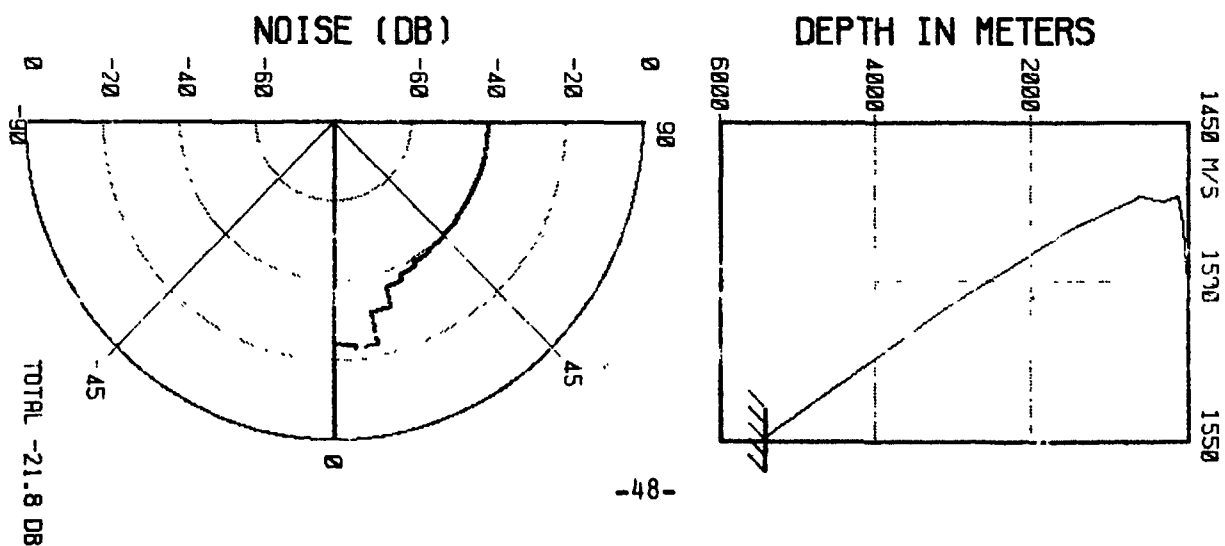
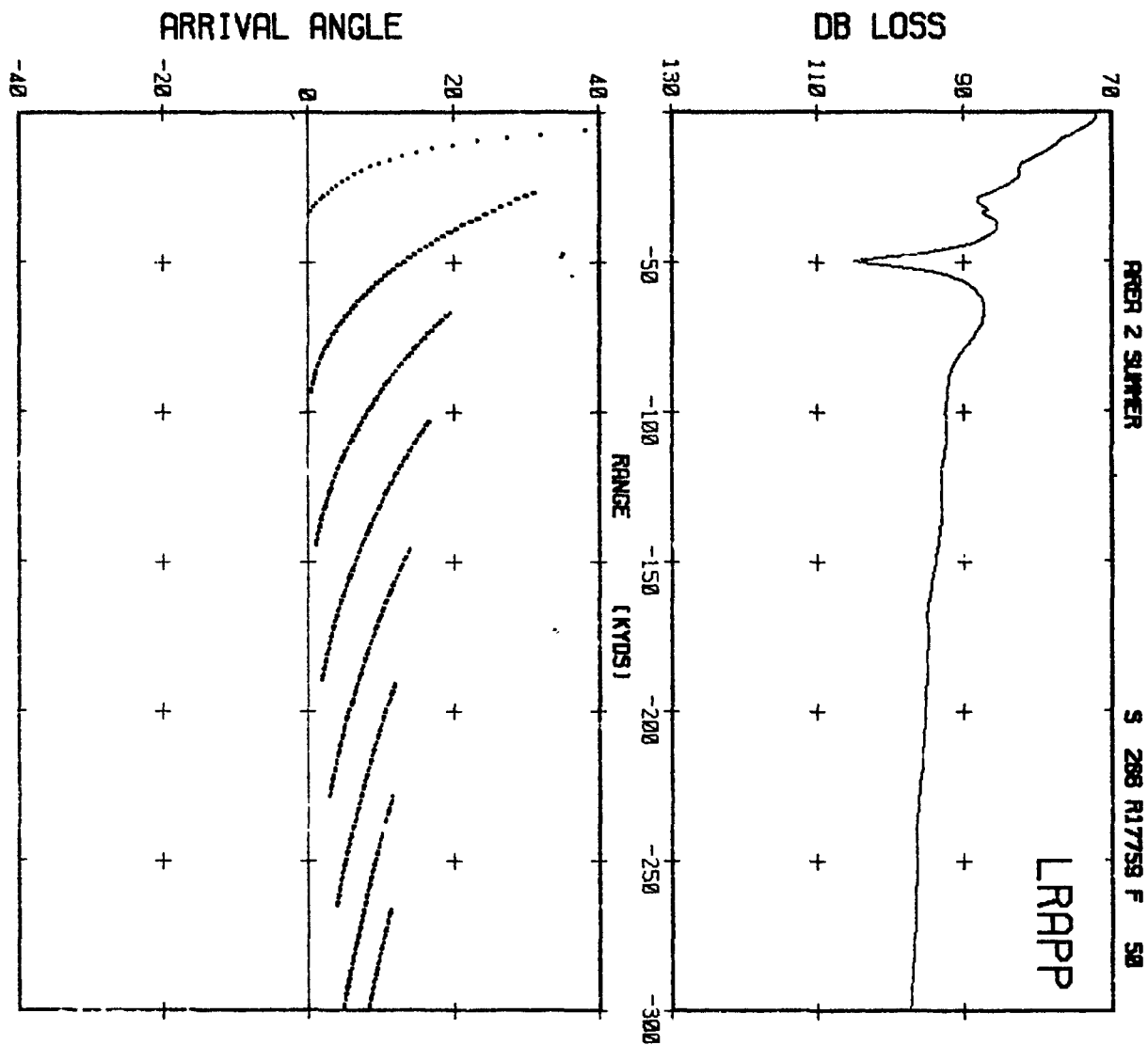


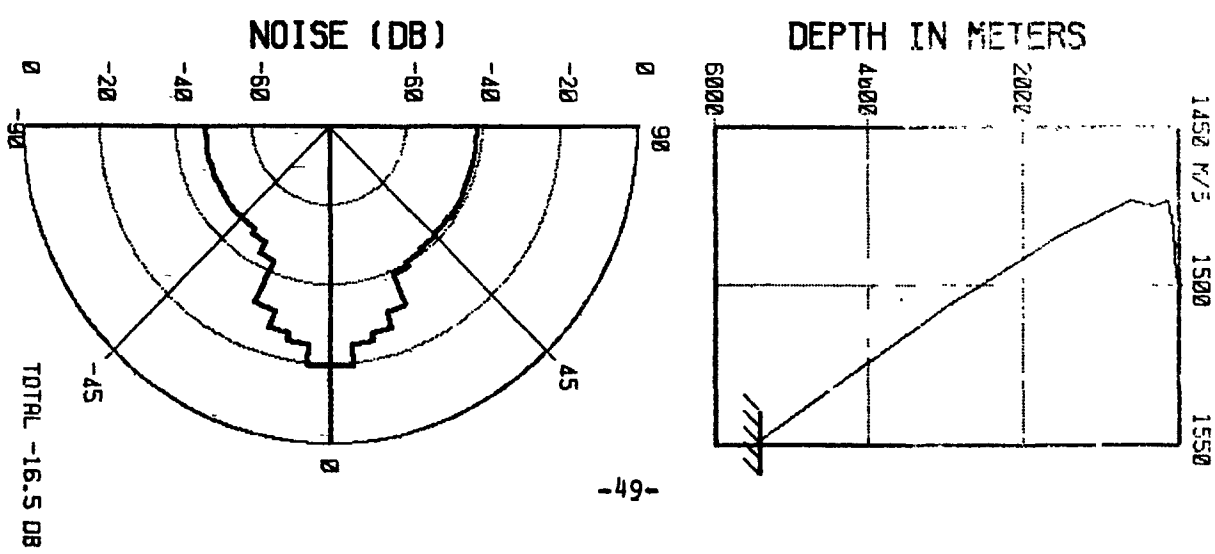
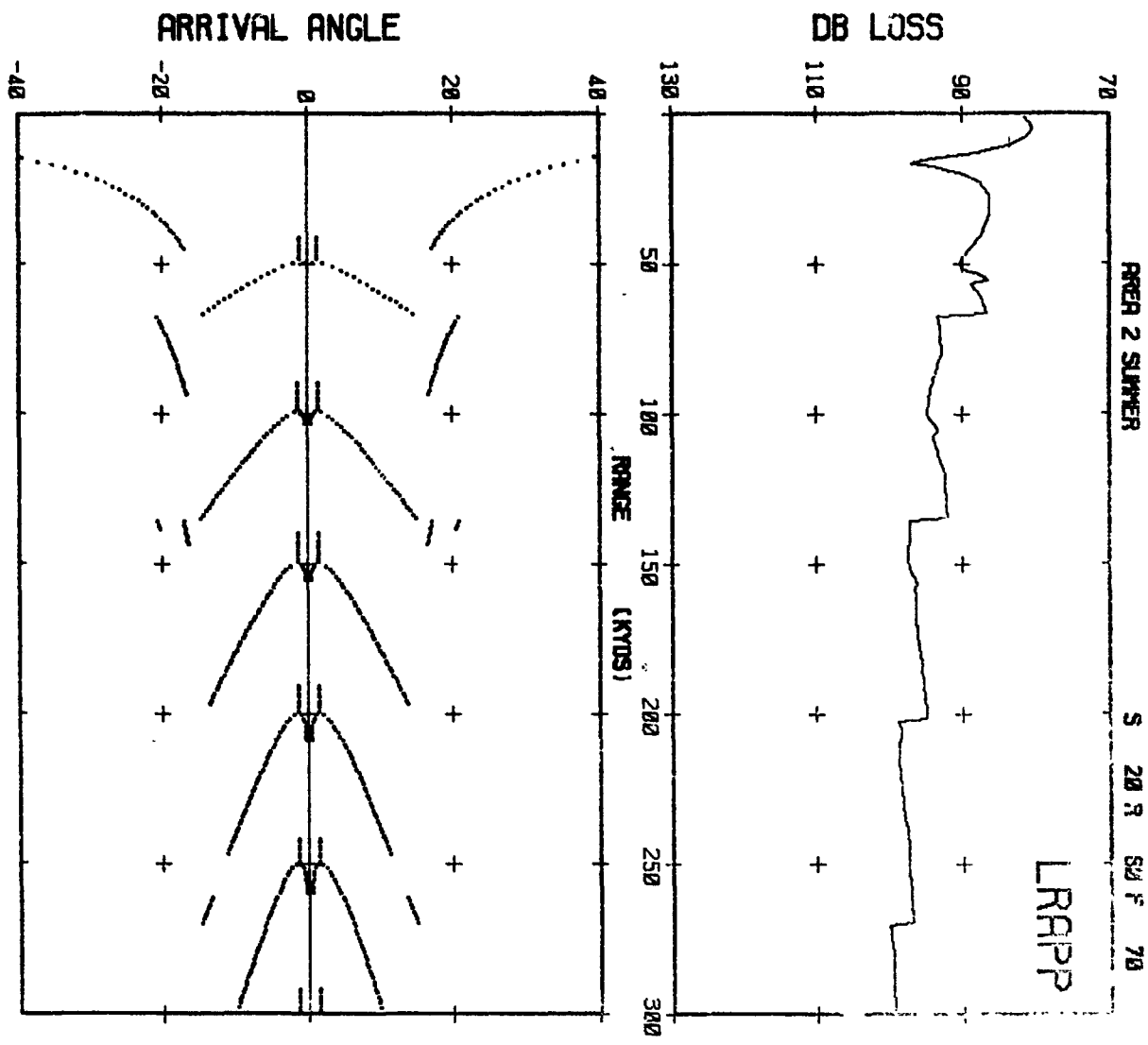
NOISE (DB)



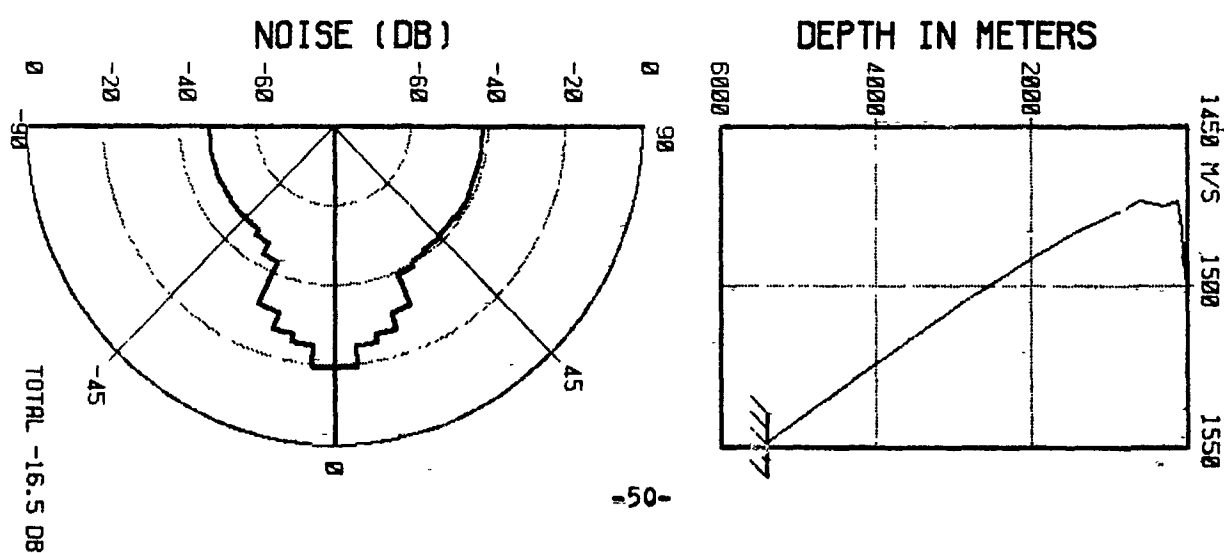
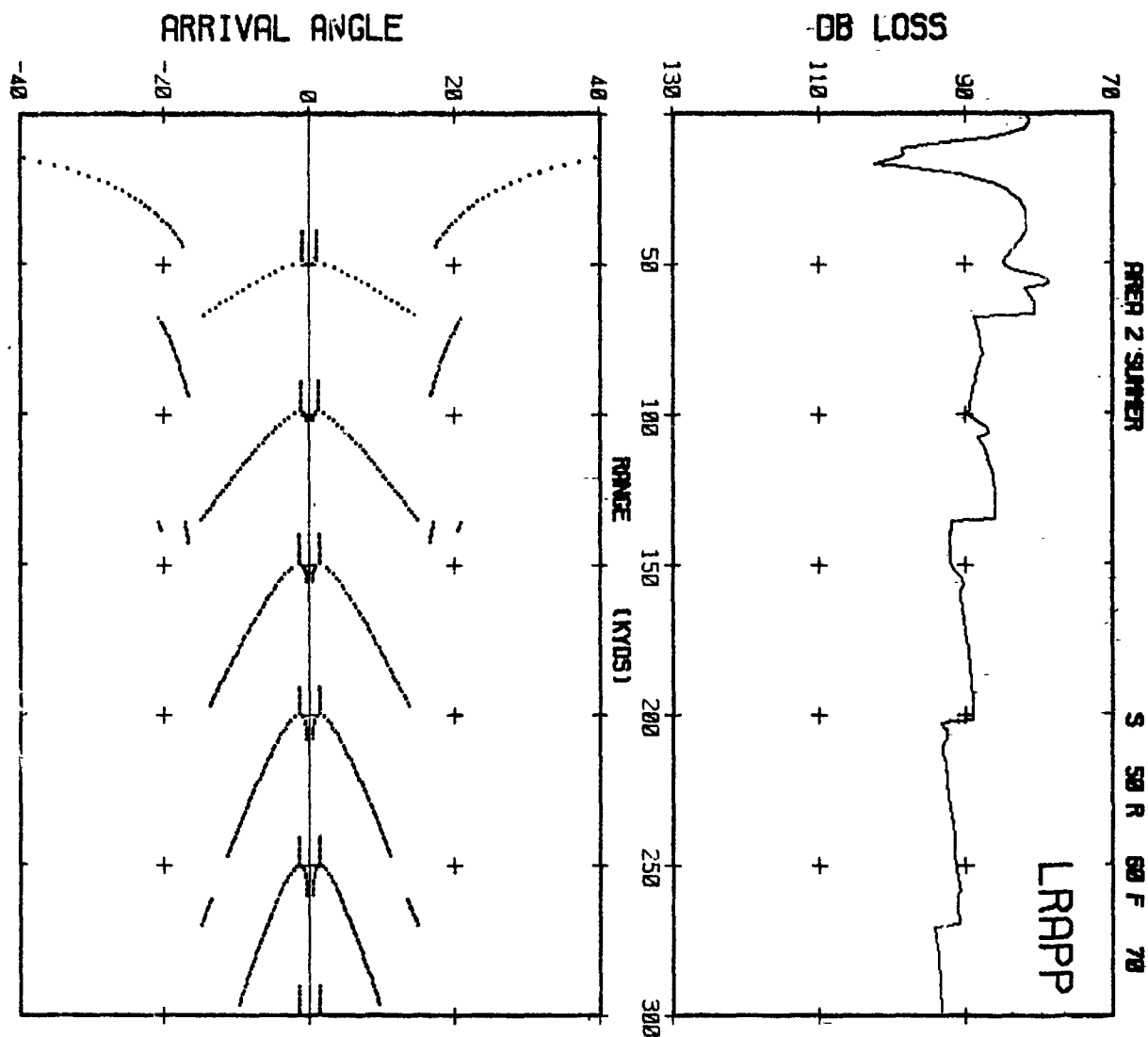


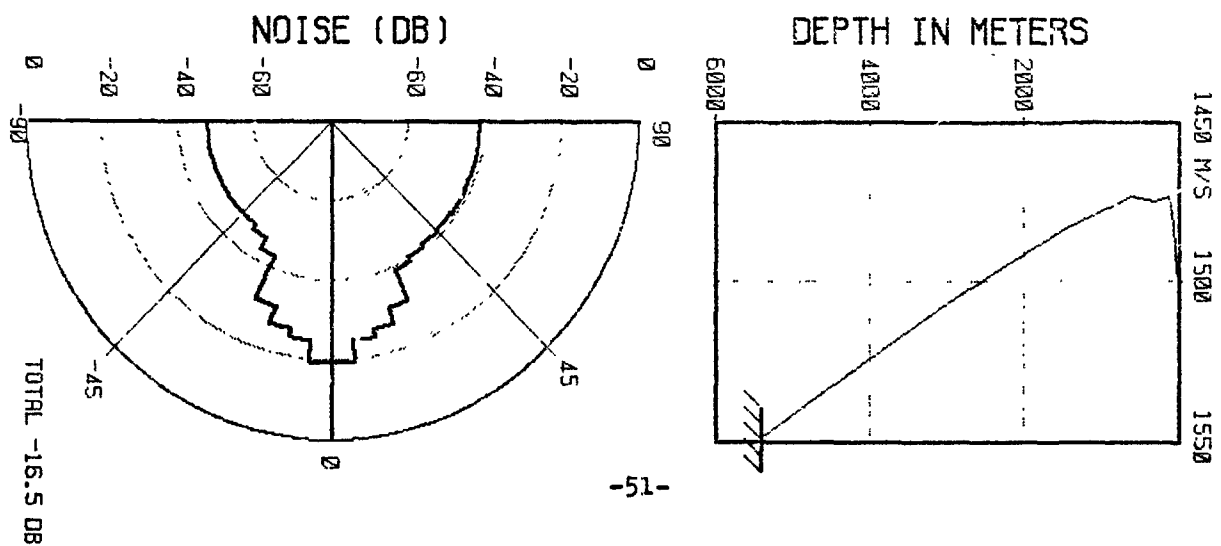
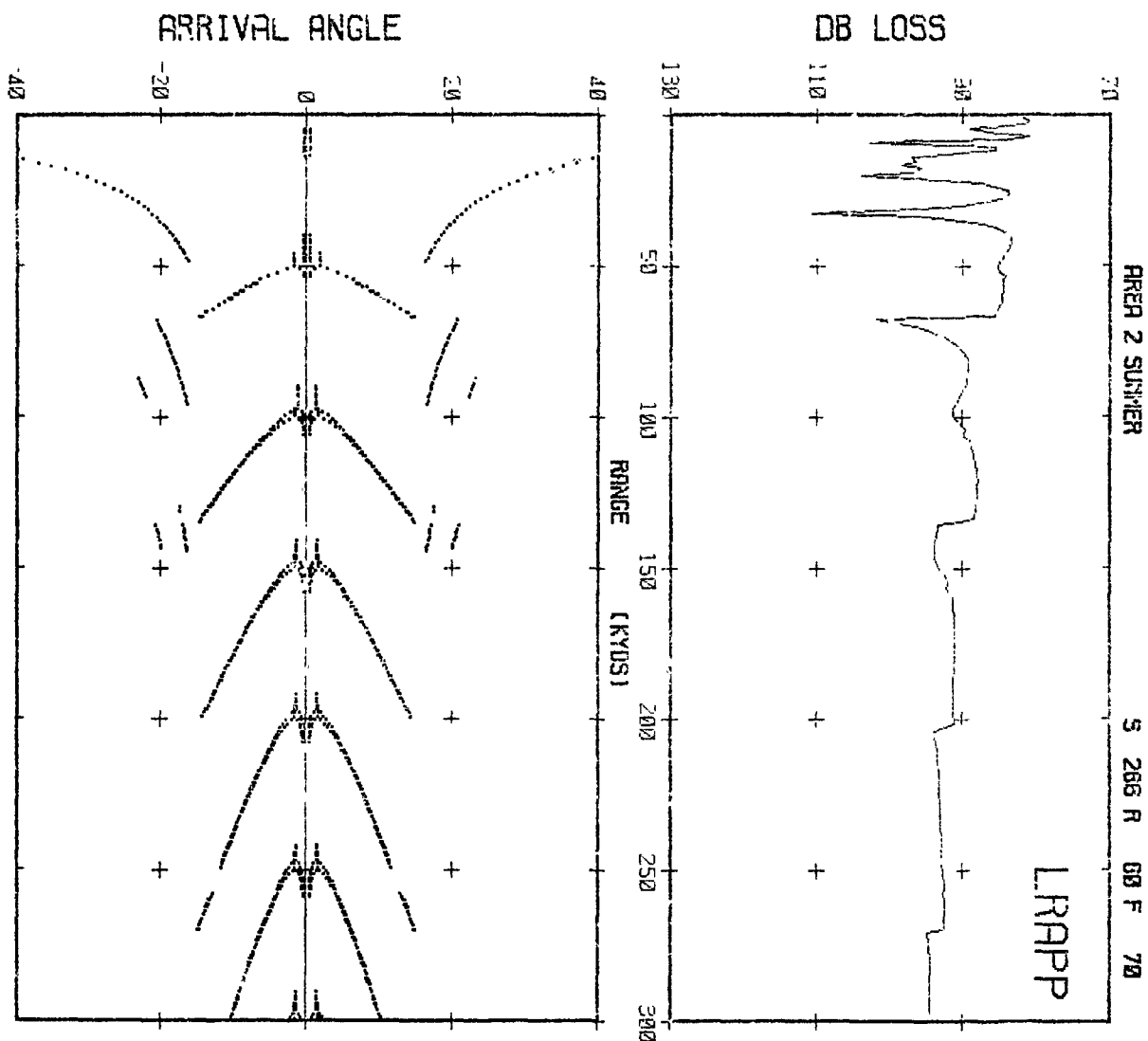


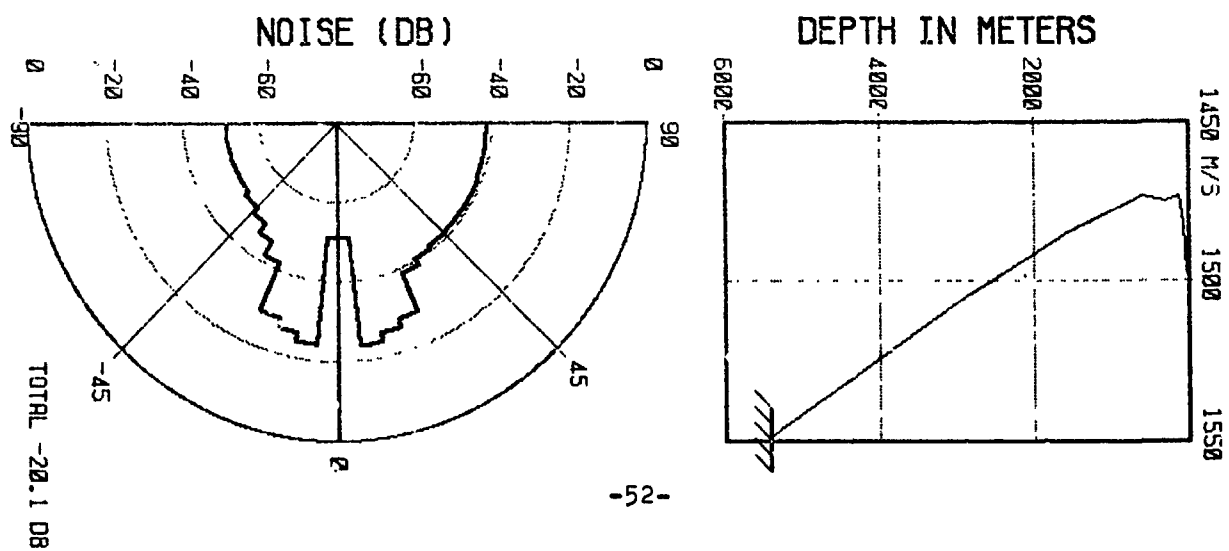
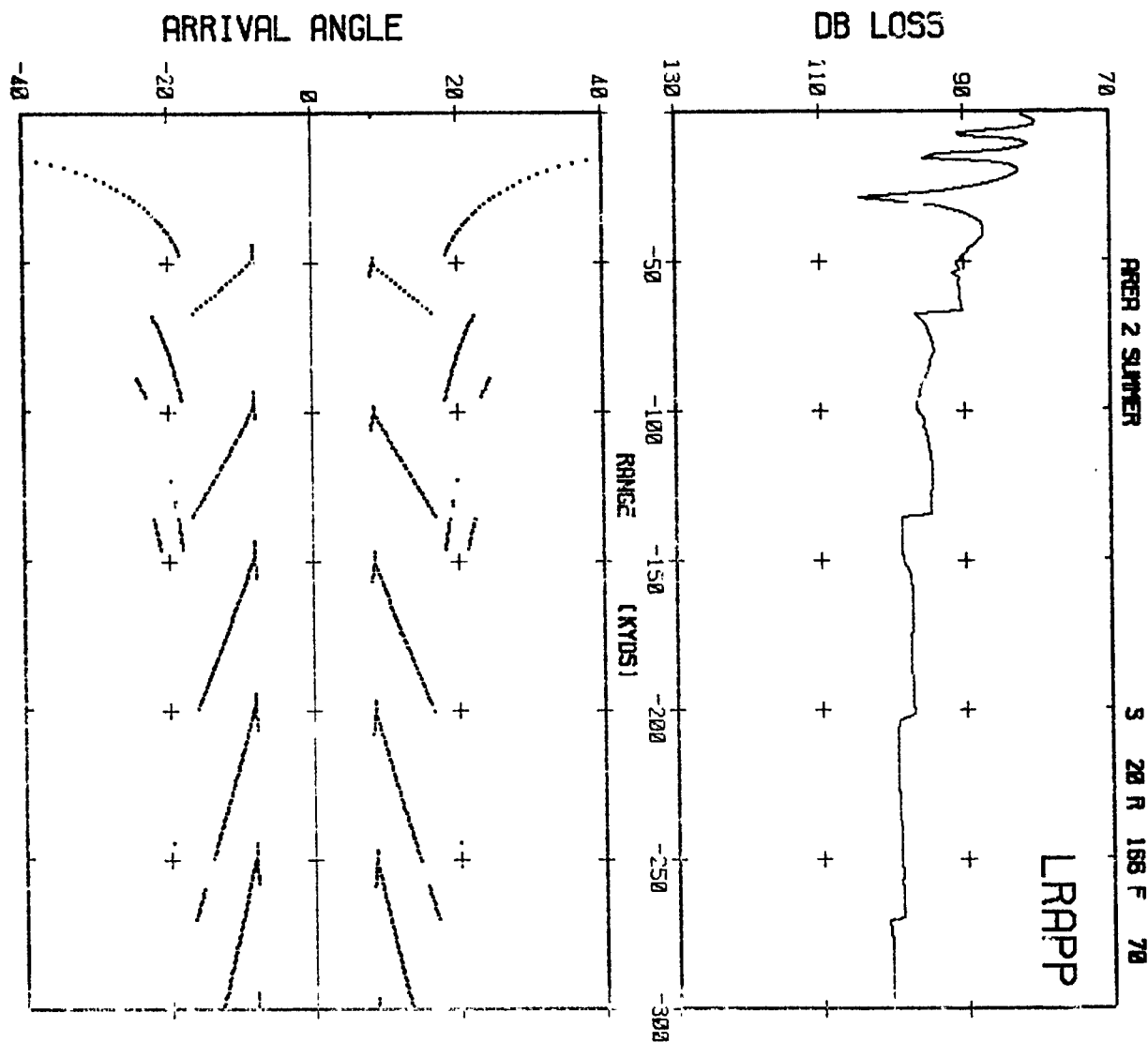


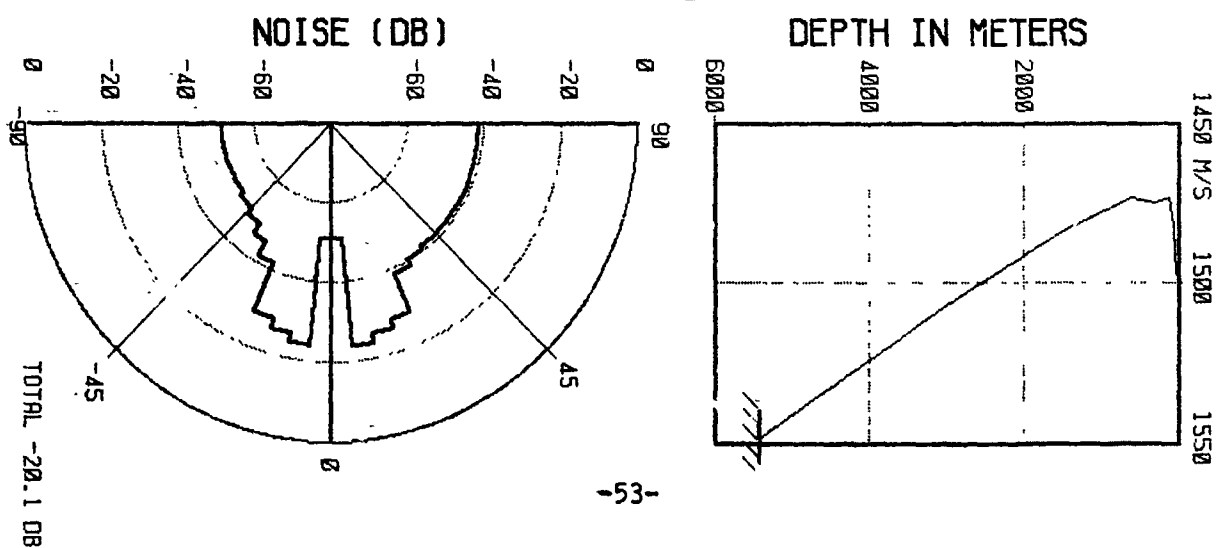
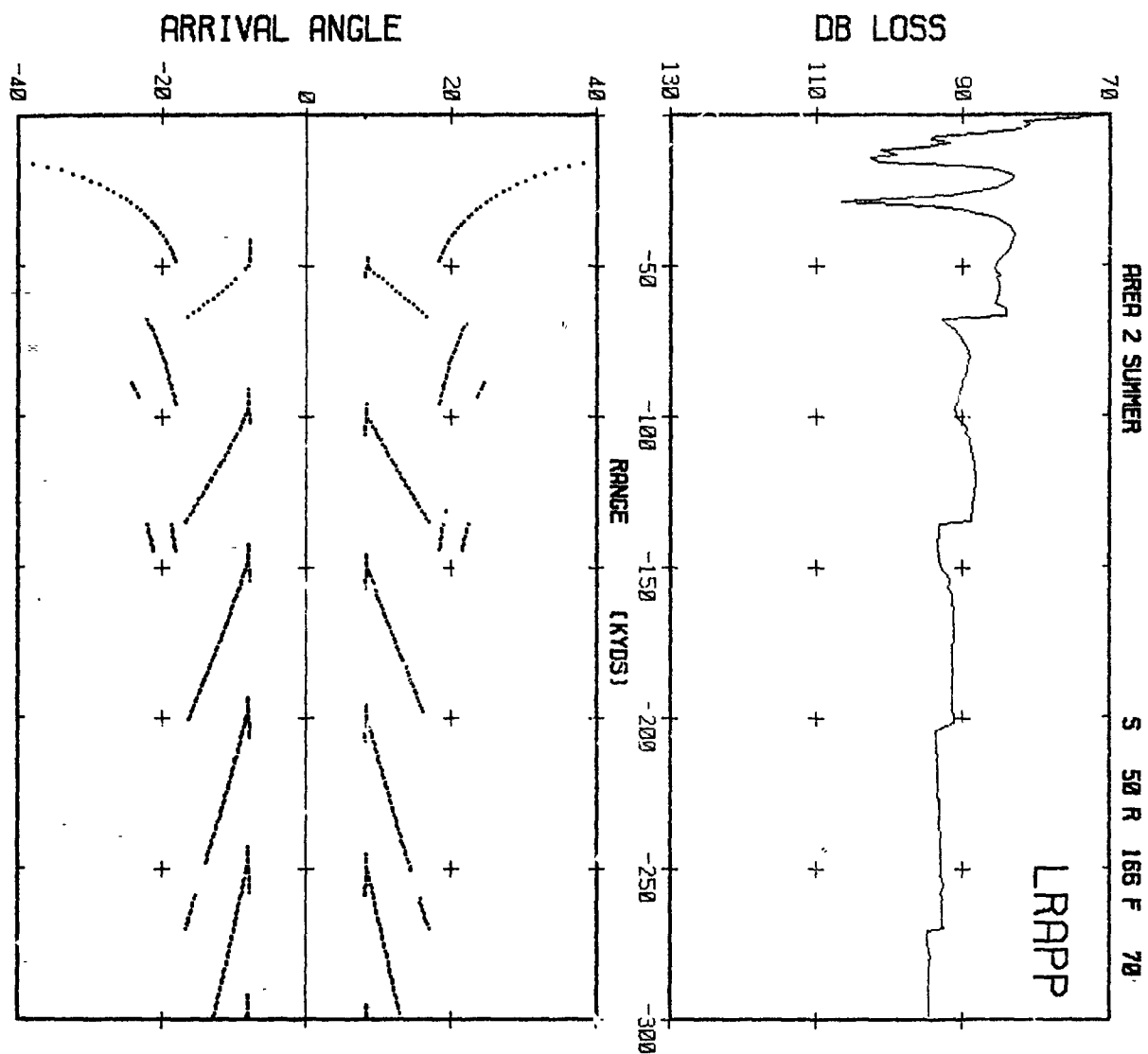


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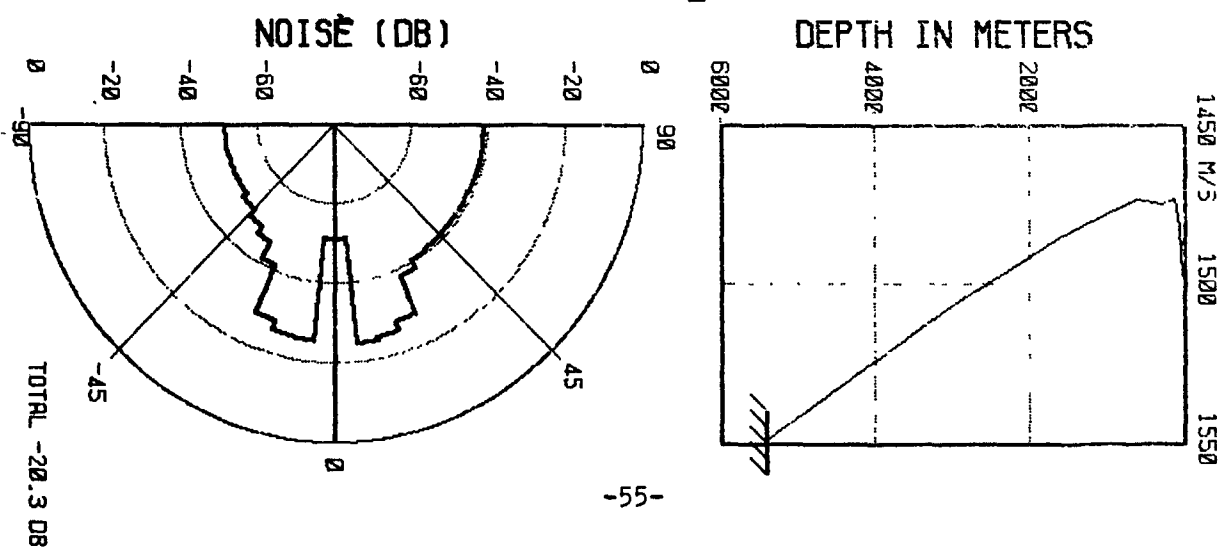
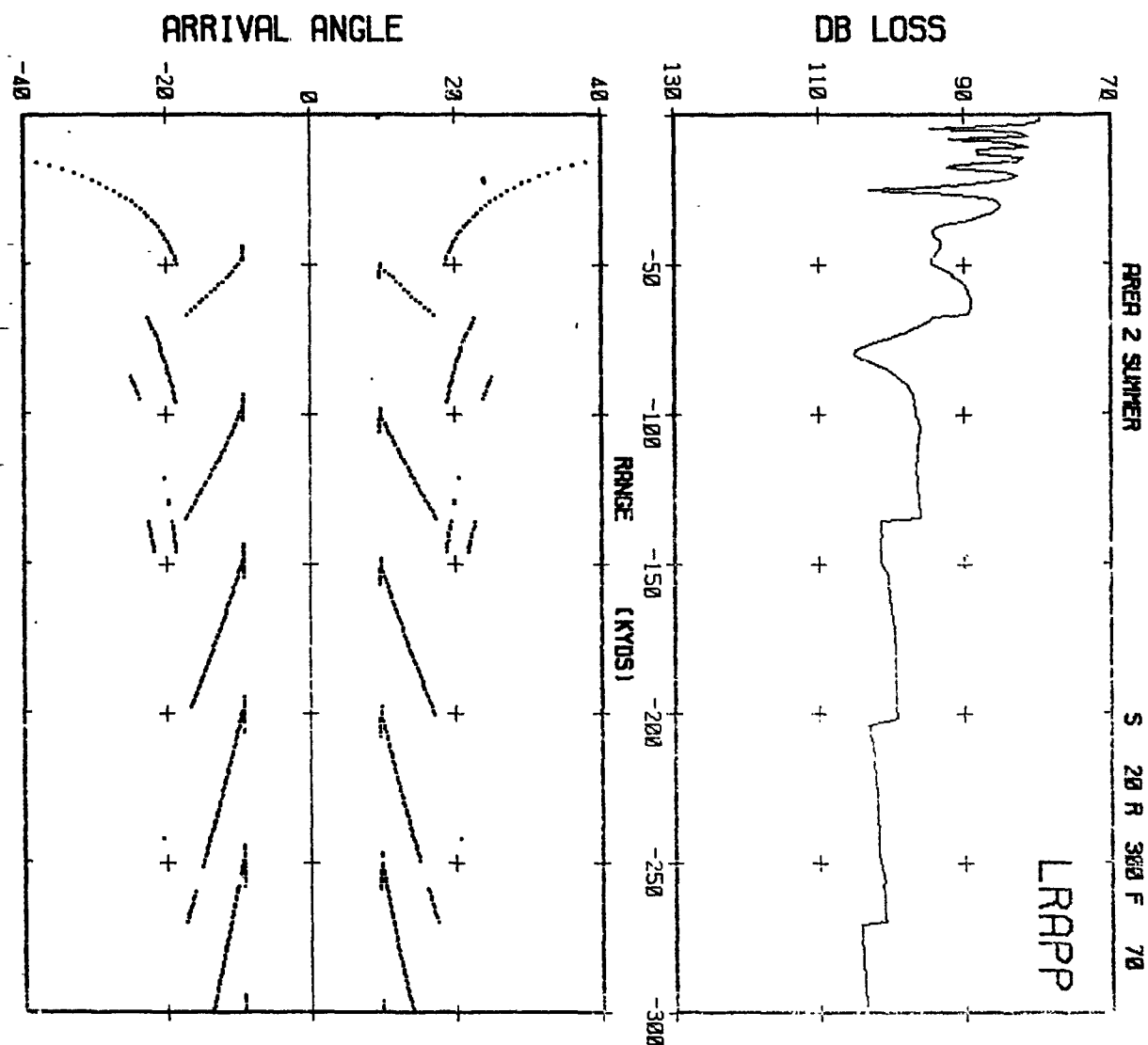




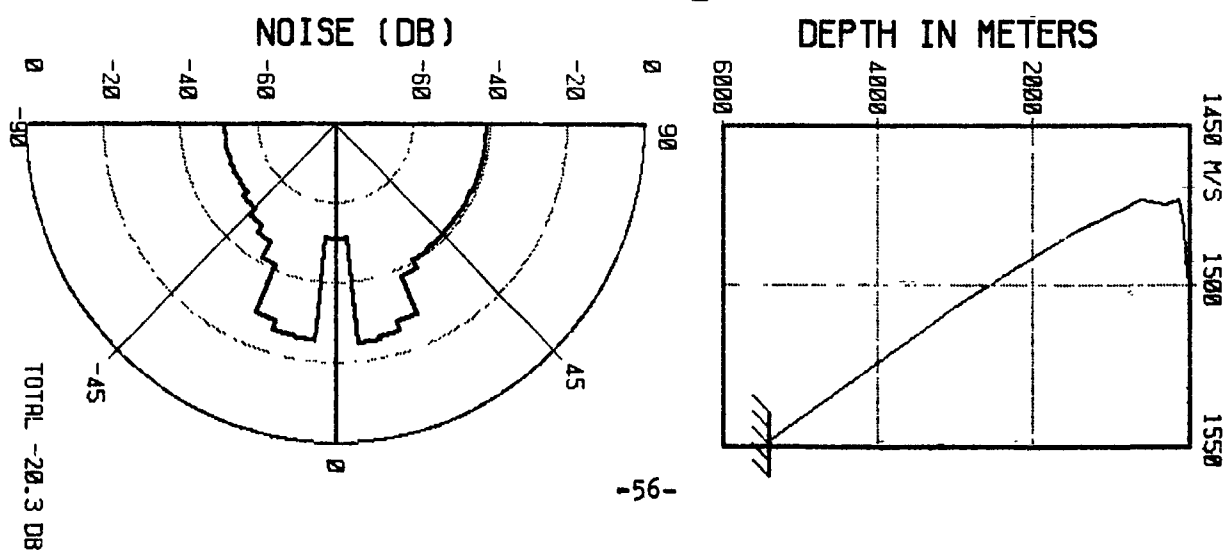
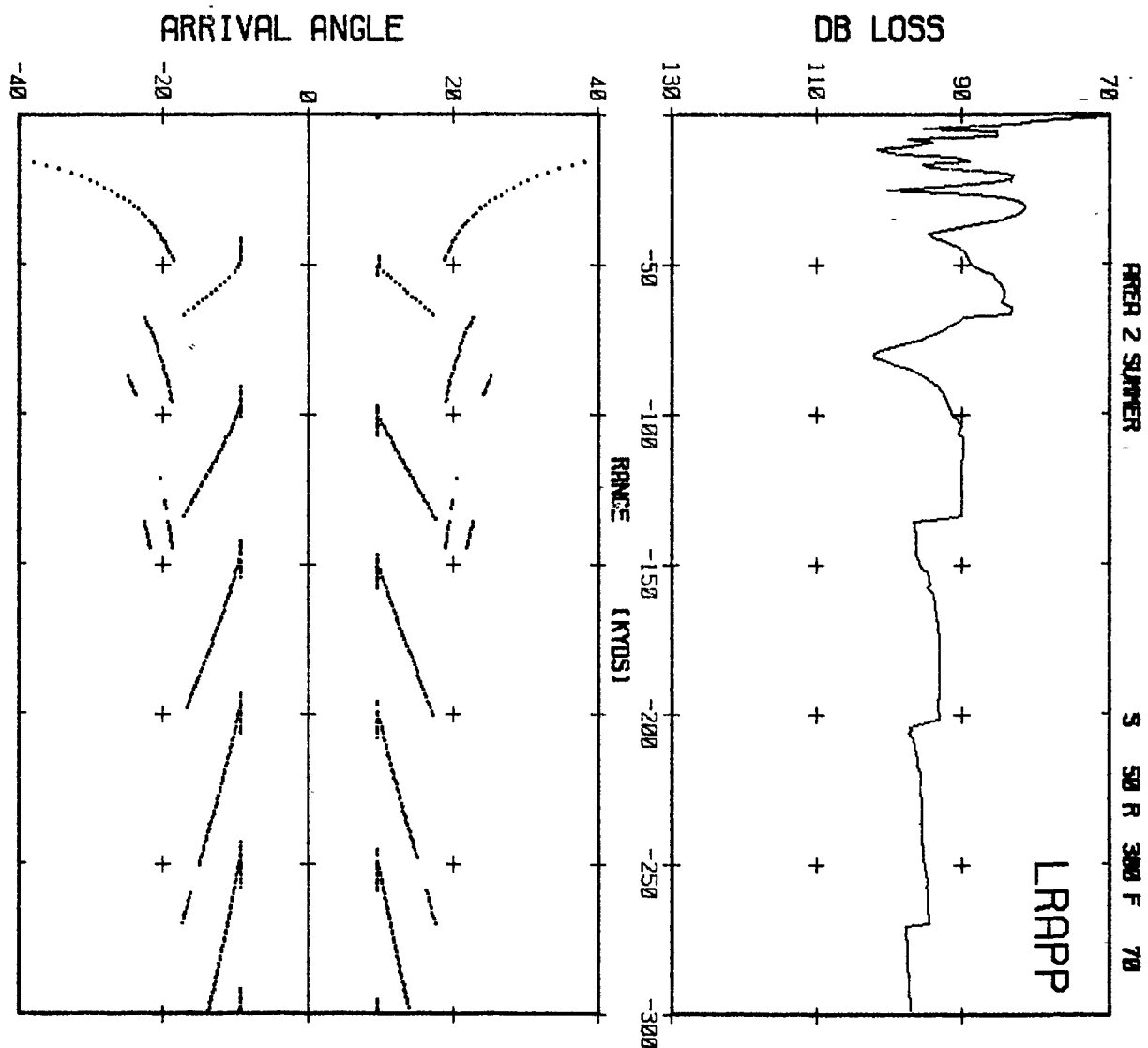








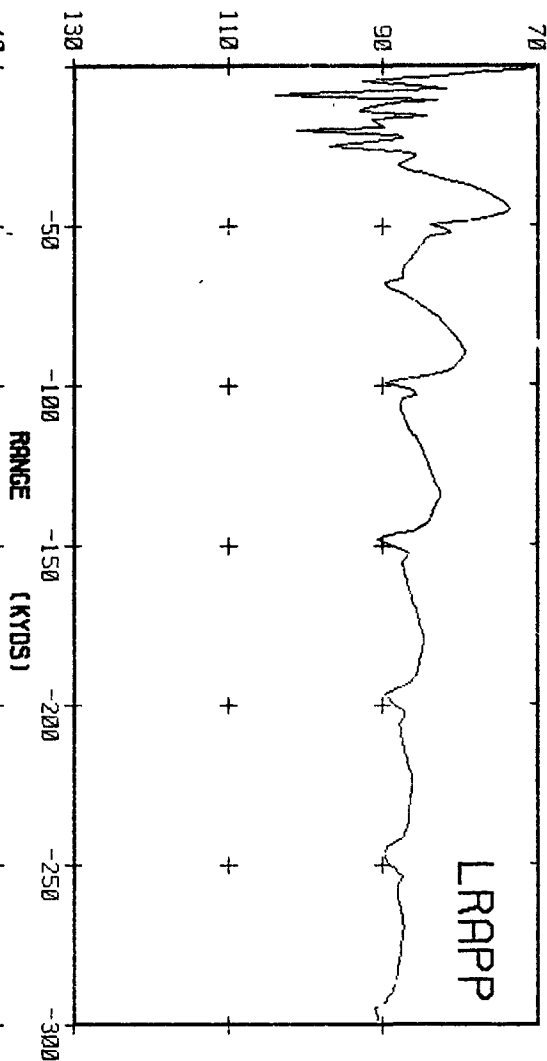




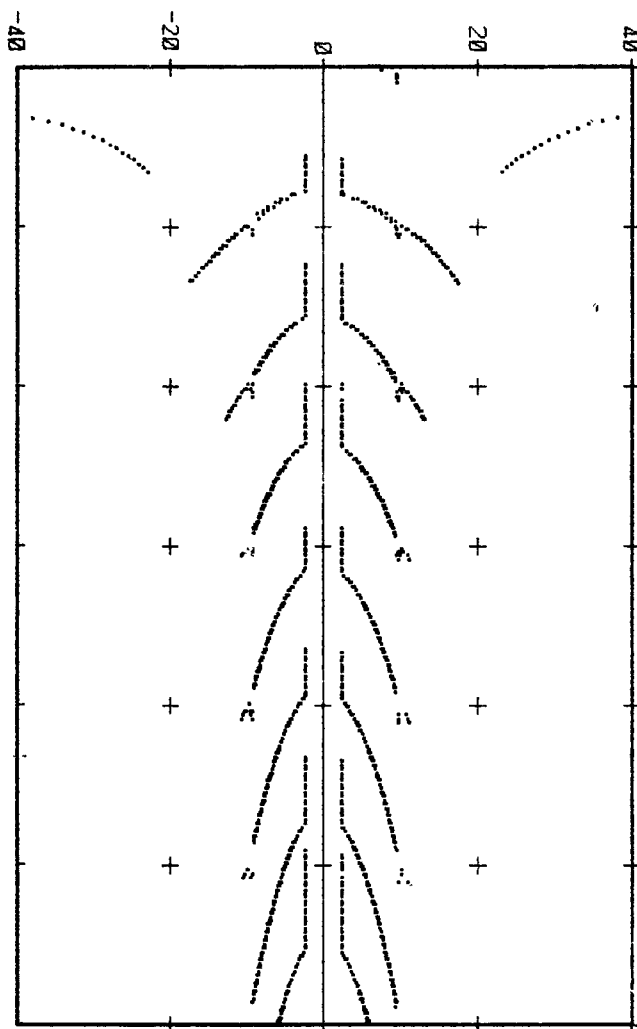
AREA 2 SUMMER

S 266 R 300 F 70

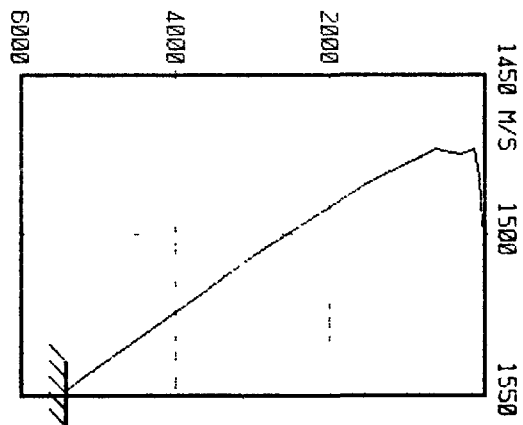
DB LOSS



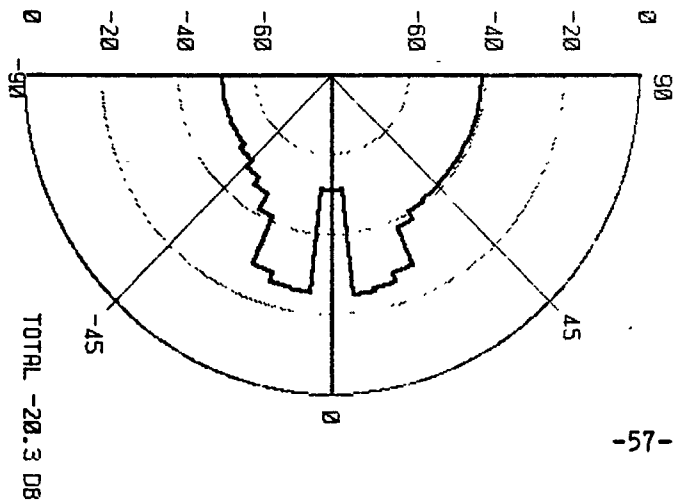
ARRIVAL ANGLE



DEPTH IN METERS



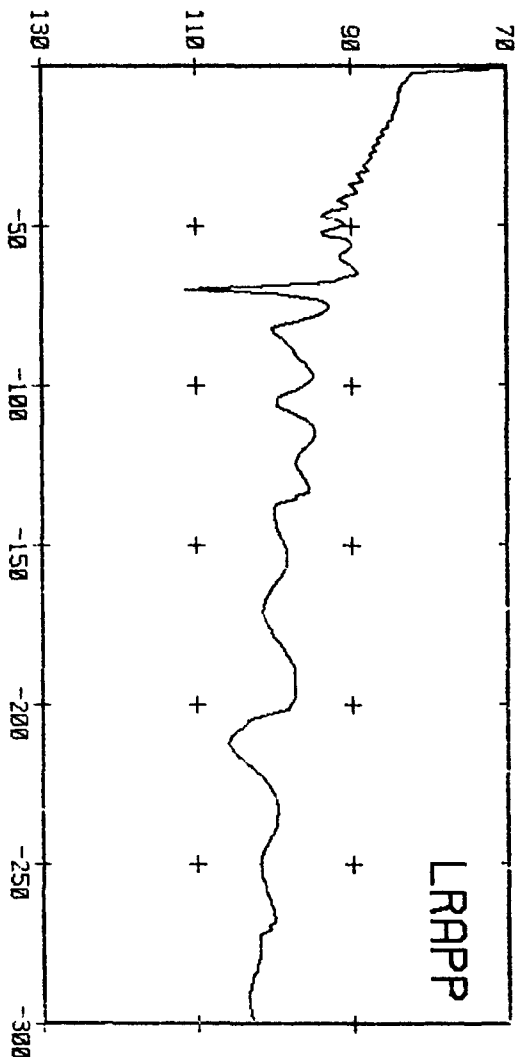
NOISE (DB)



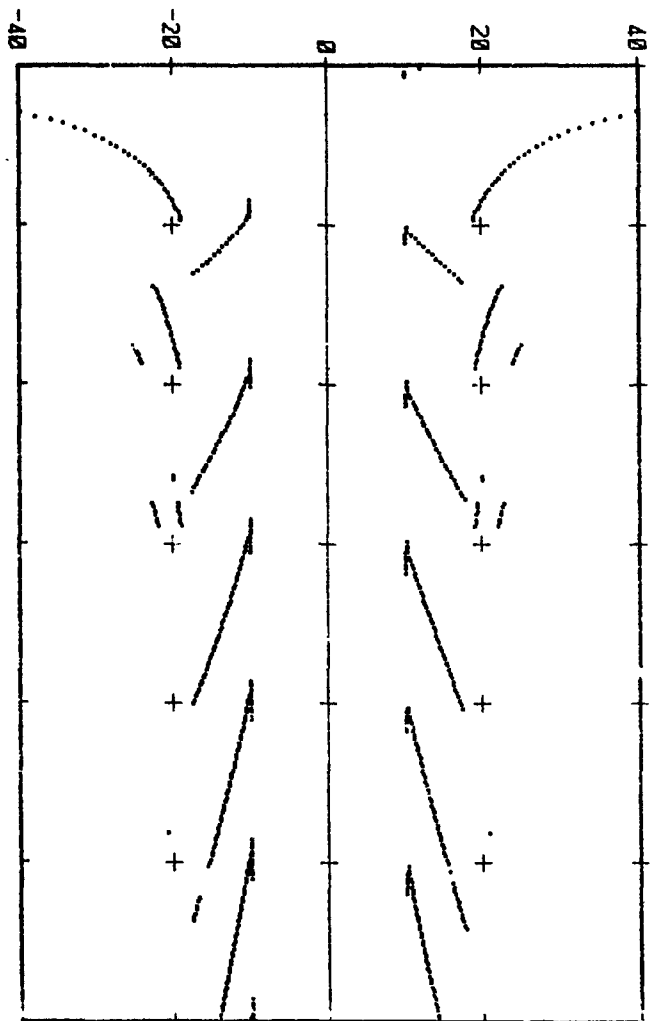
PRER 2 SUMMER

S 20 R 1000 F 70

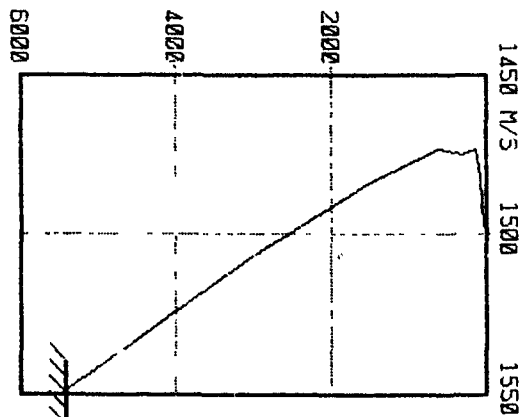
DB LOSS



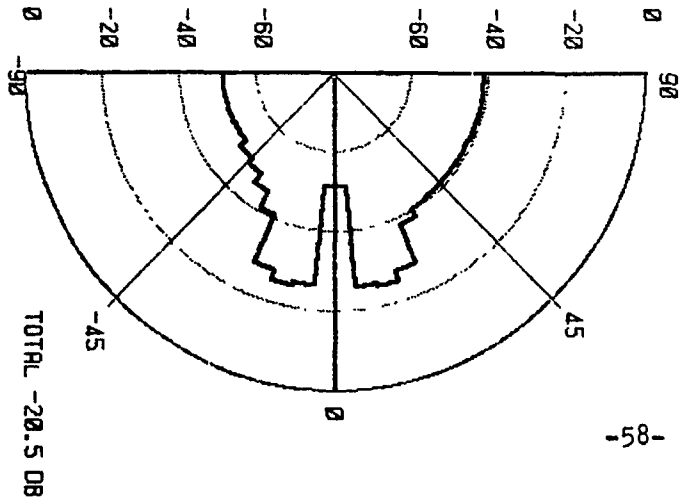
ARRIVAL ANGLE

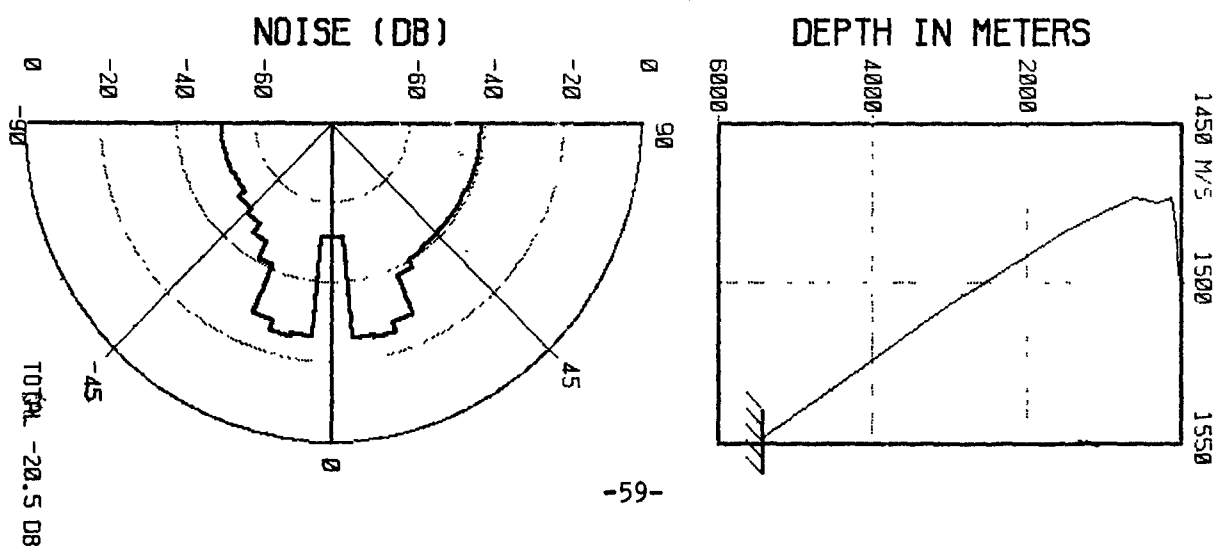
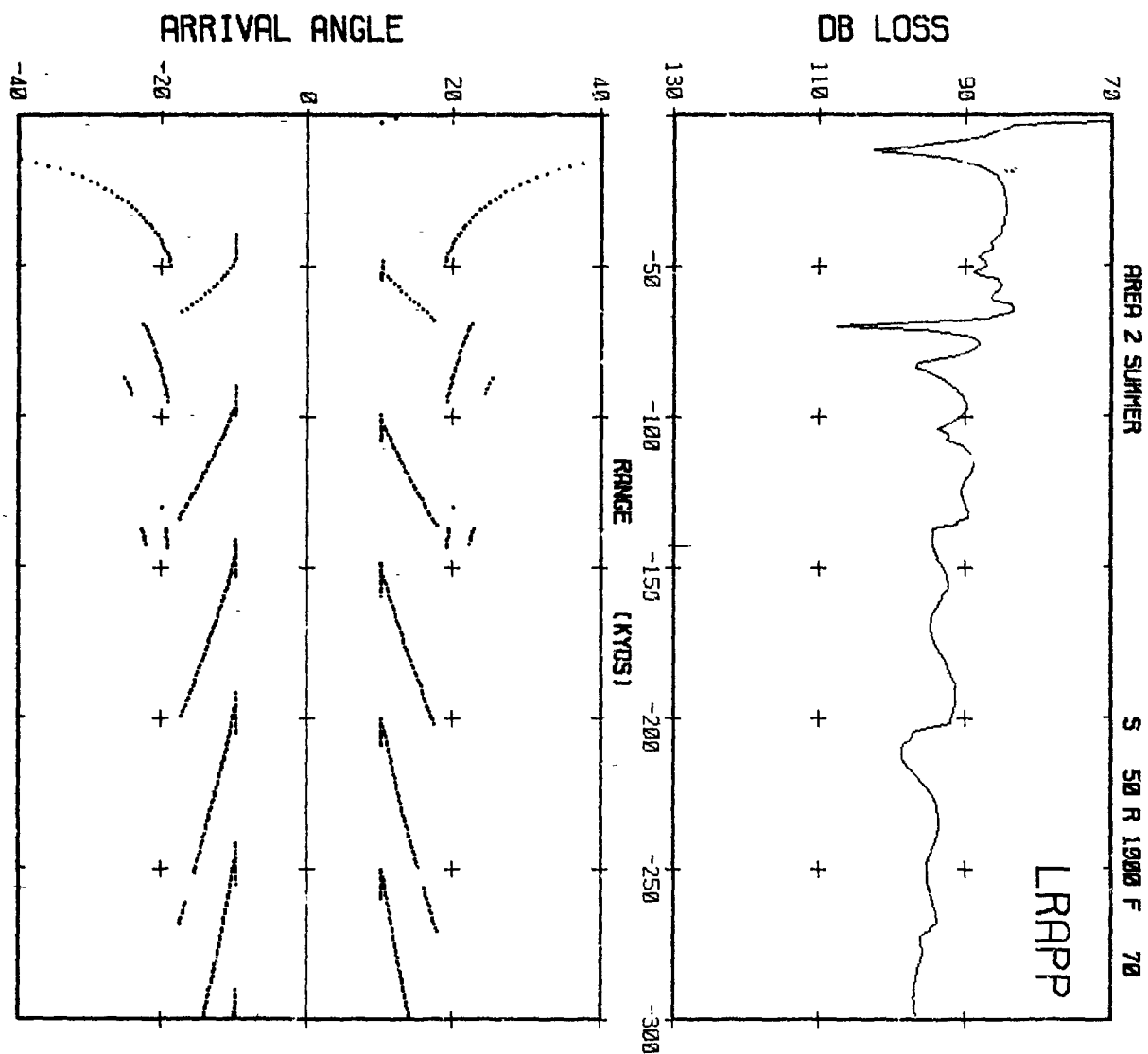


DEPTH IN METERS



NOISE (DB)



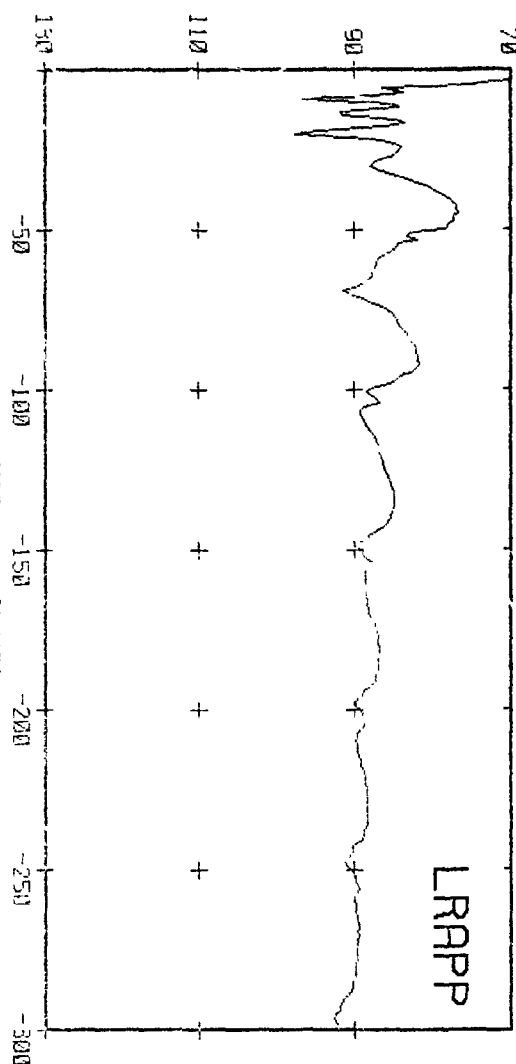


AREA 2 SUMMER

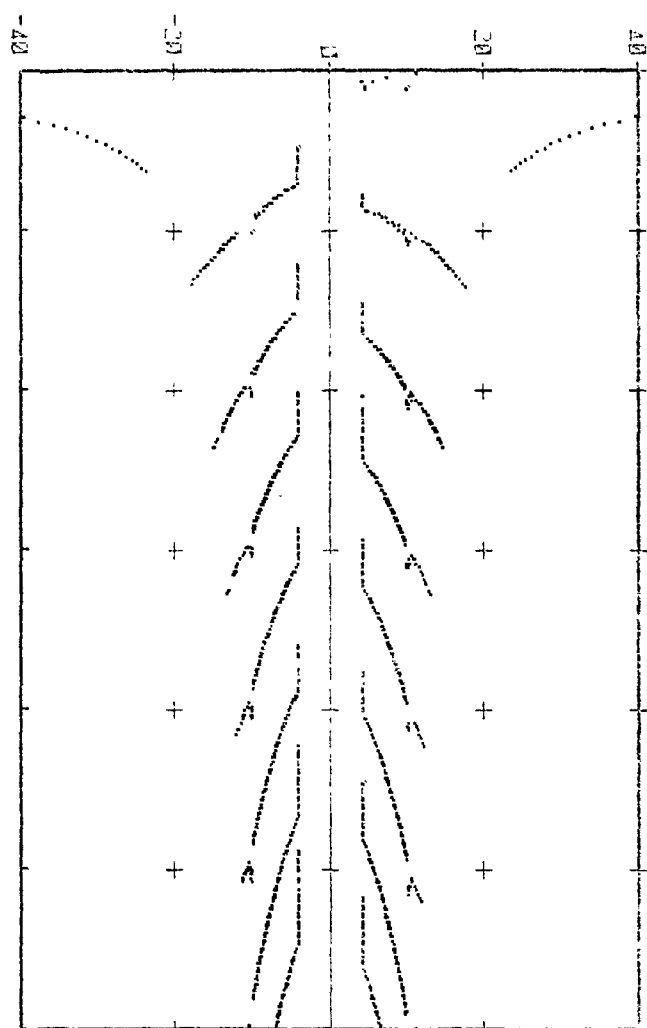
S 266 R 1000 F 70

LRAPP

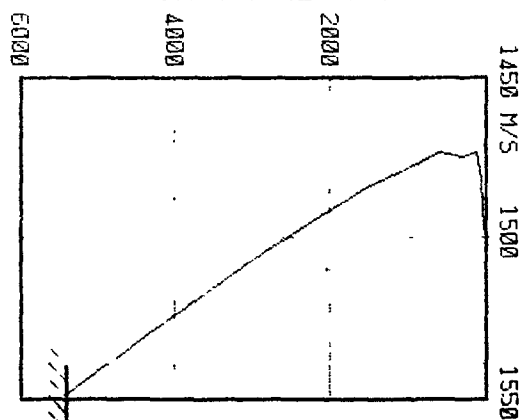
DB LOSS



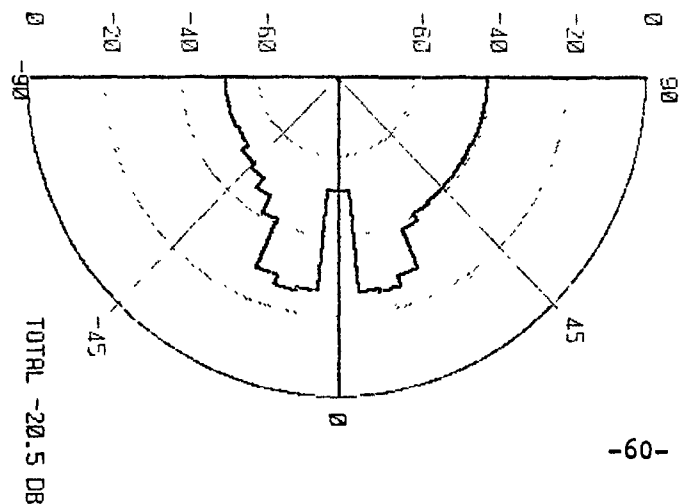
ARRIVAL ANGLE



DEPTH IN METERS



NOISE (DB)



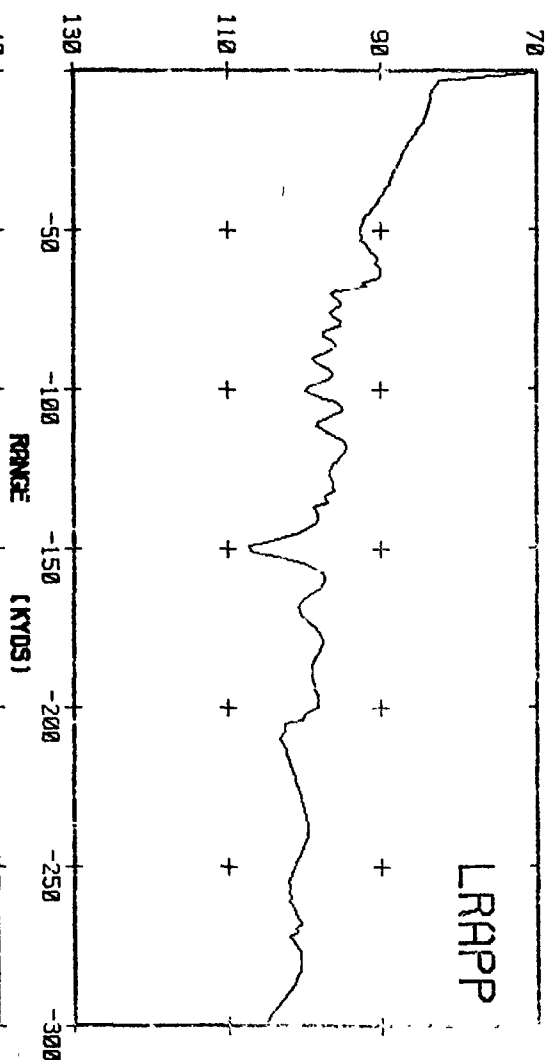
TOTAL -20.5 DB

AREA 2 SUMMER

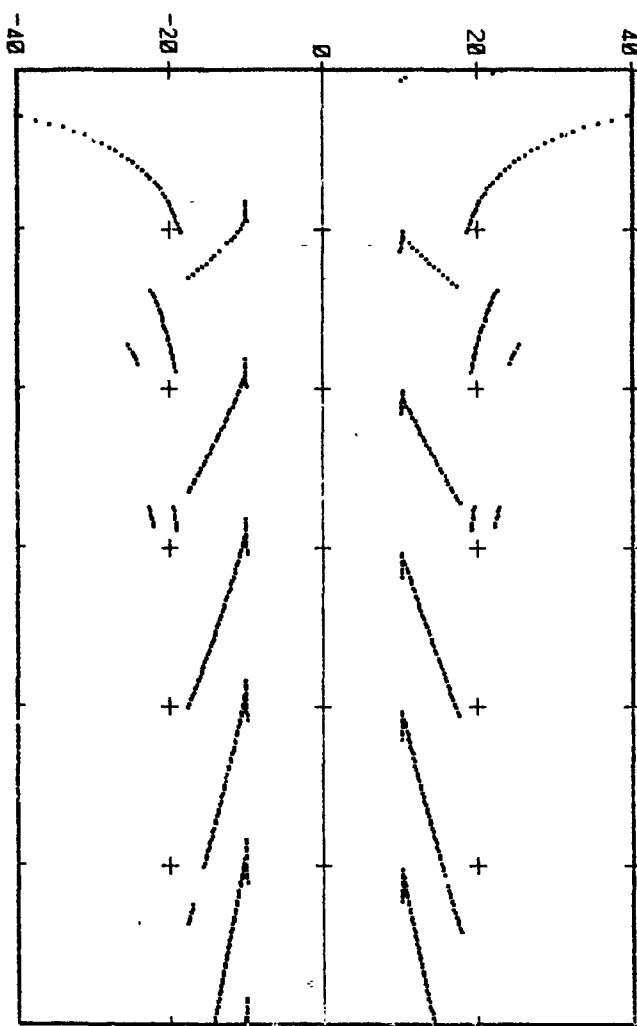
S 20 R 1500 F 70

LRAPP

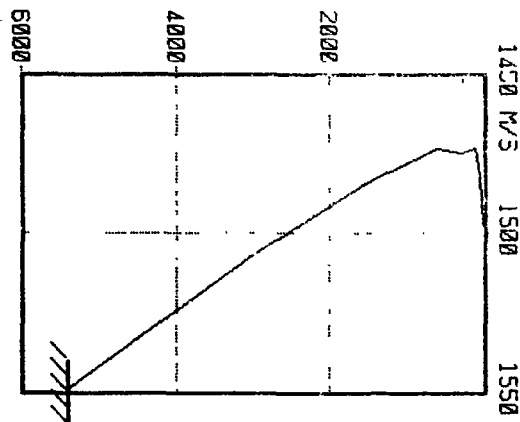
DB LOSS



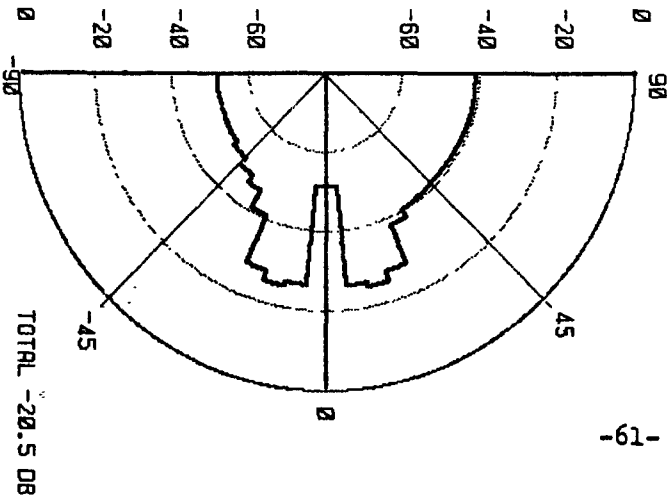
ARRIVAL ANGLE

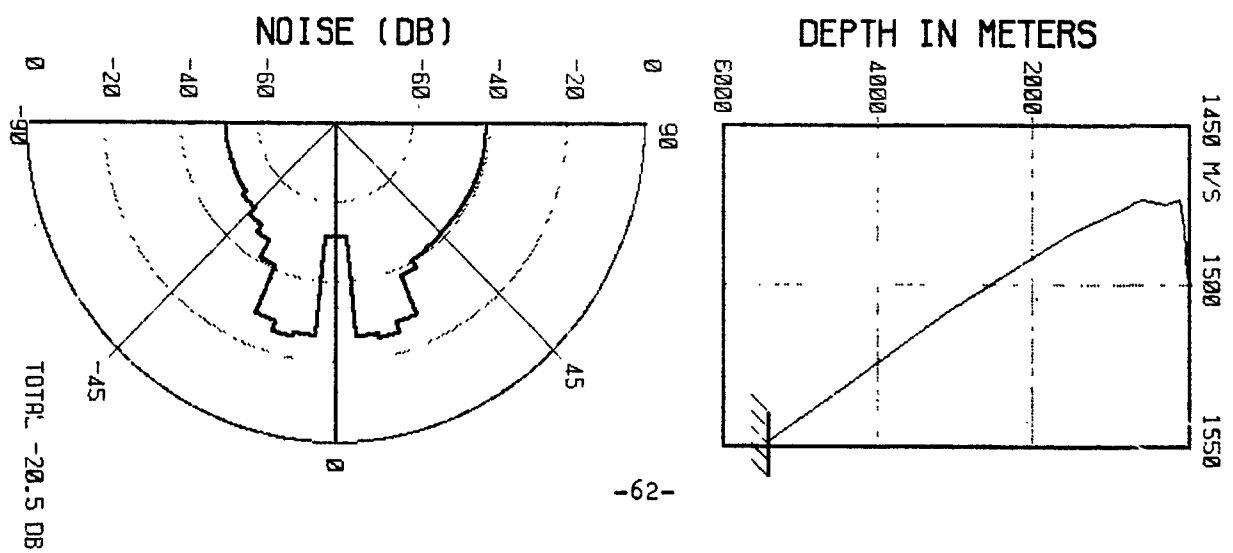
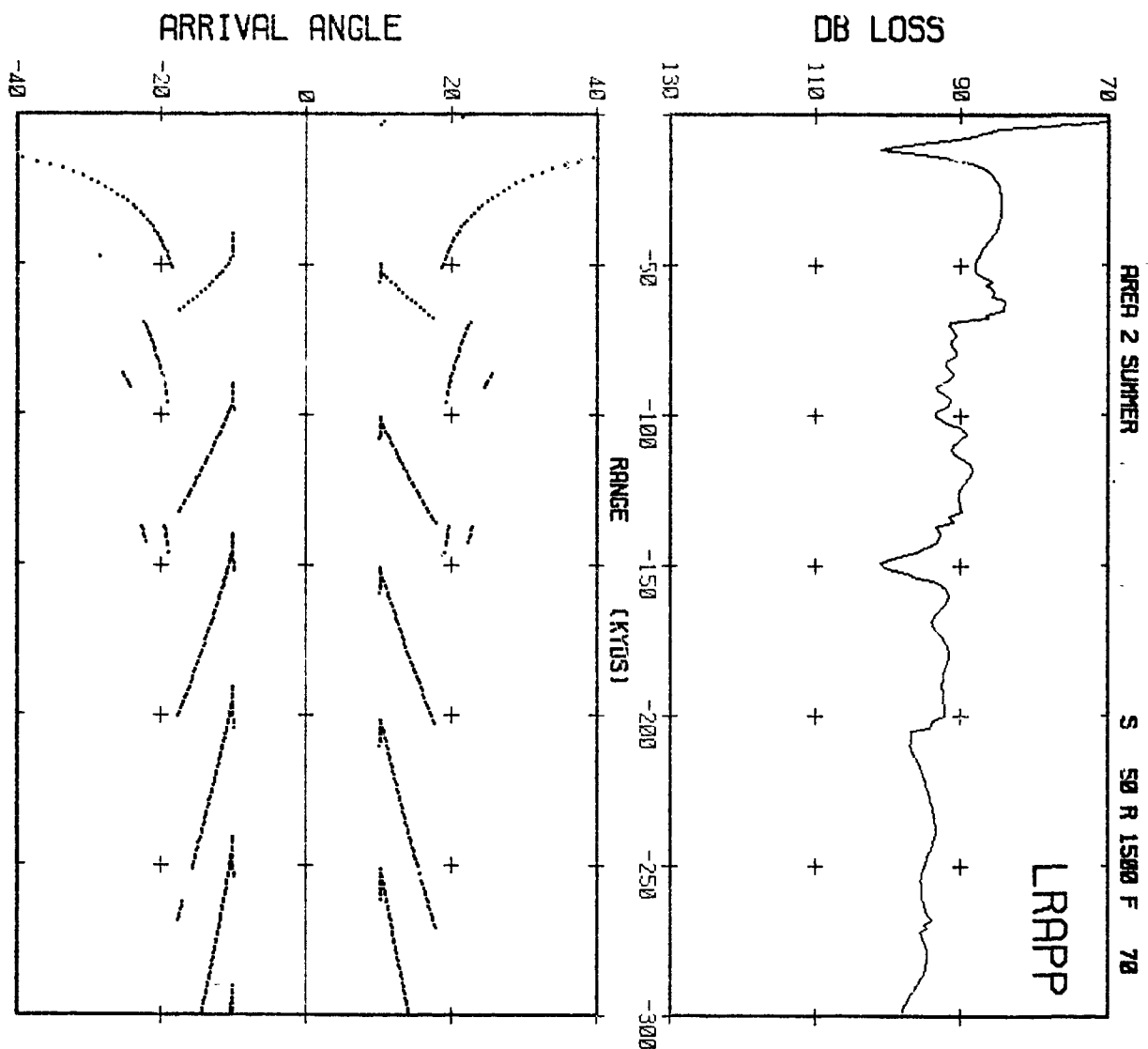


DEPTH IN METERS



NOISE (DB)

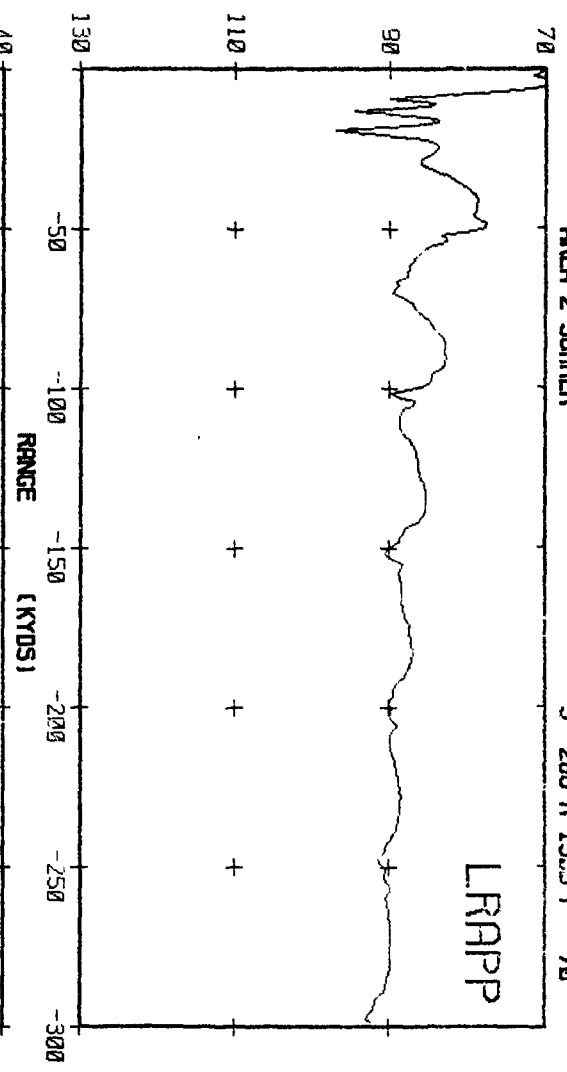




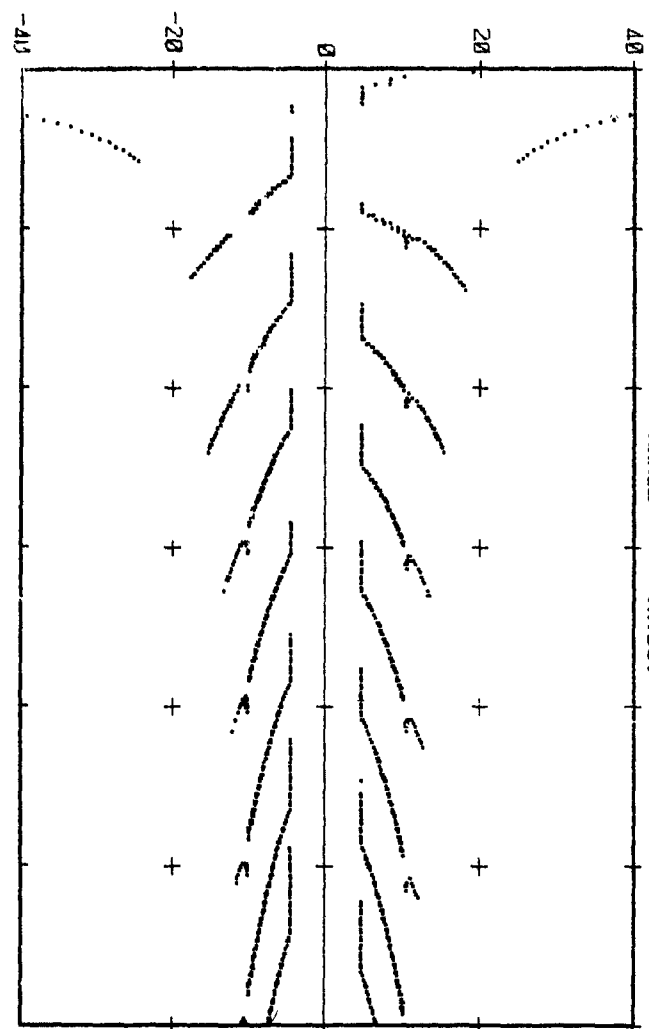
AREA 2 SUMMER

S 266 R 1500 F 70

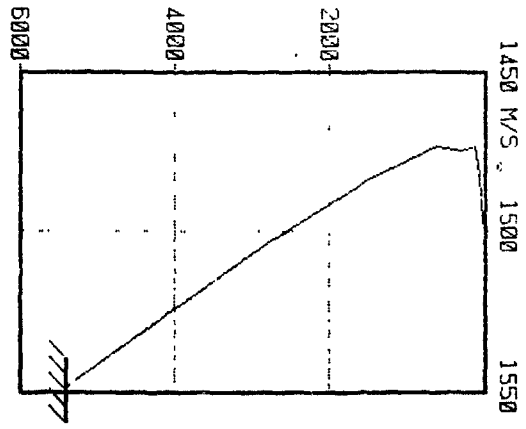
DB LOSS



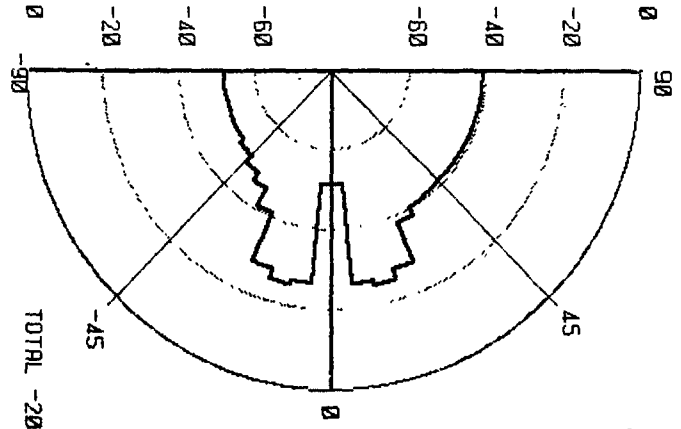
ARRIVAL ANGLE



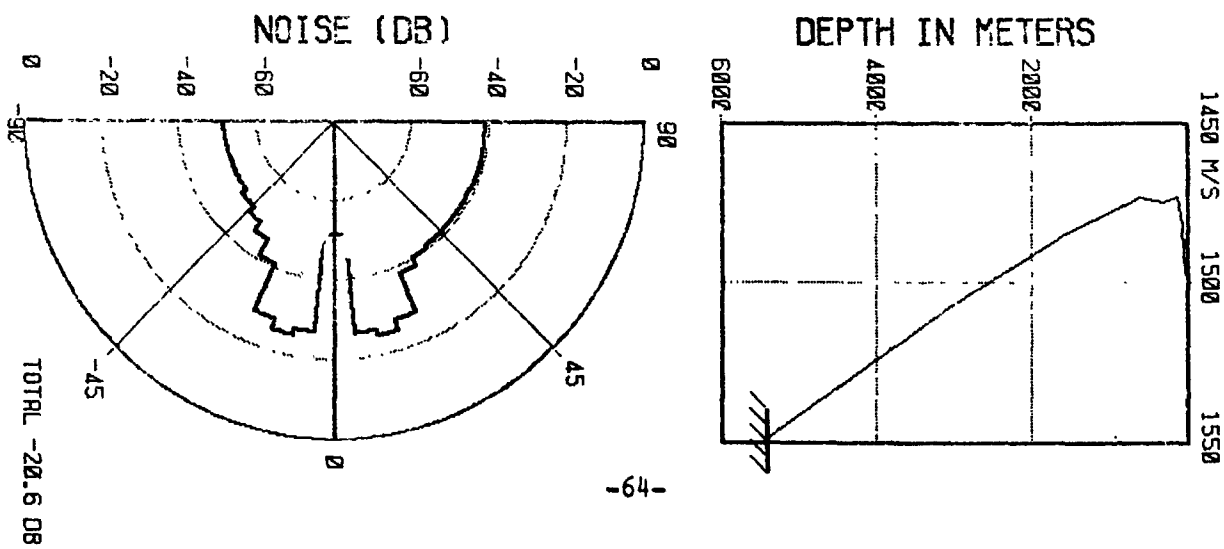
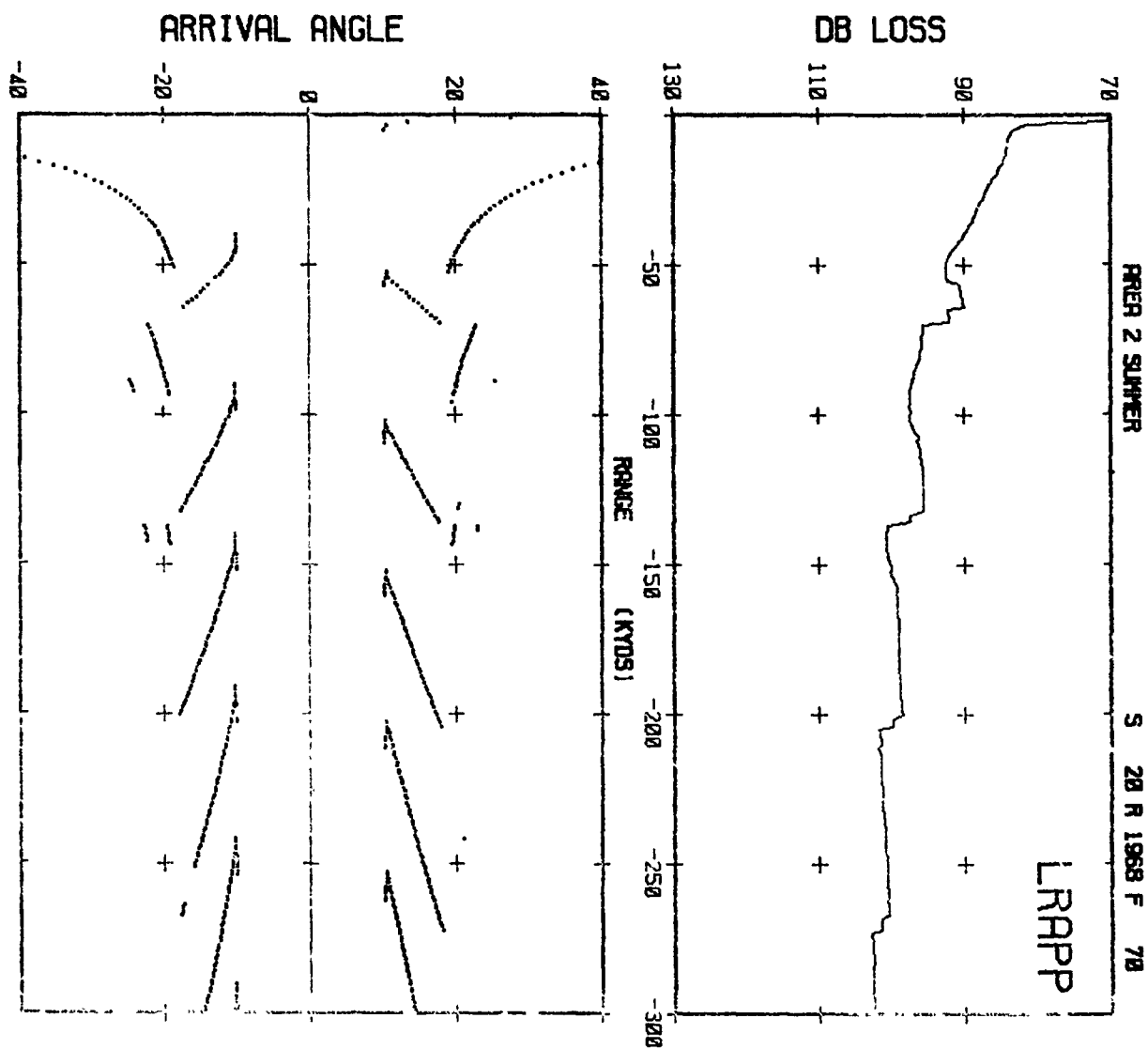
DEPTH IN METERS



NOISE (DB)





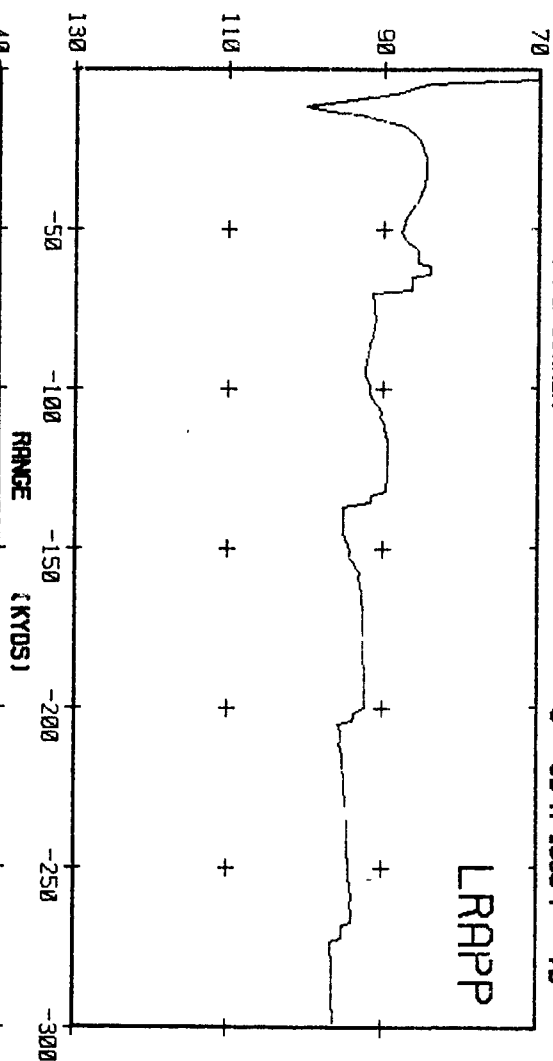


PRER 2 SUMMER

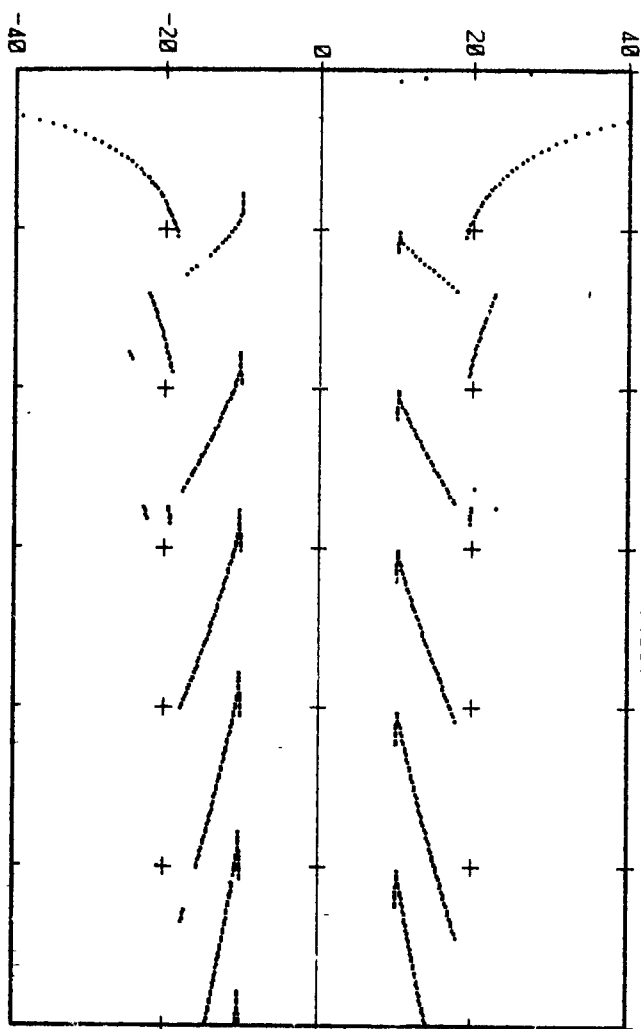
S 50 R 1968 F 70

LRAPP

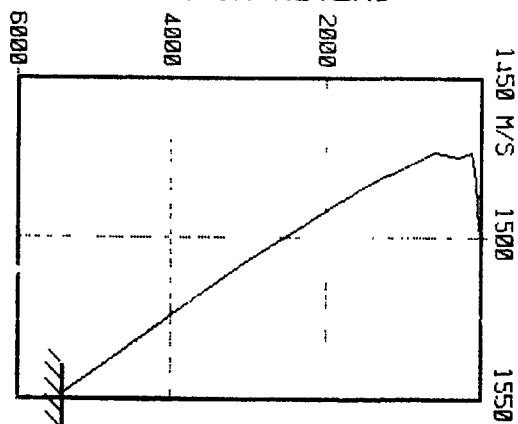
DB LOSS



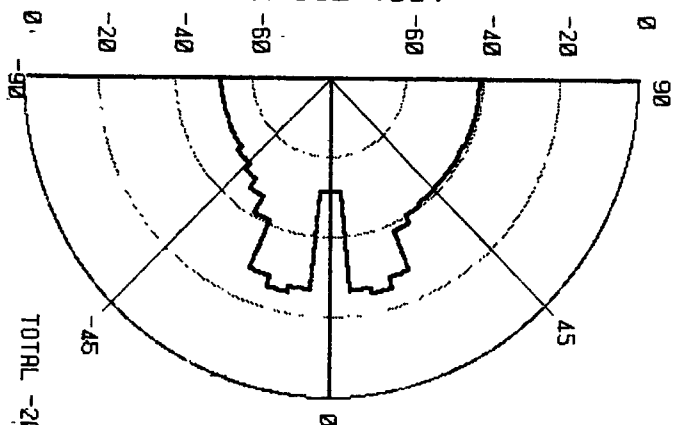
ARRIVAL ANGLE

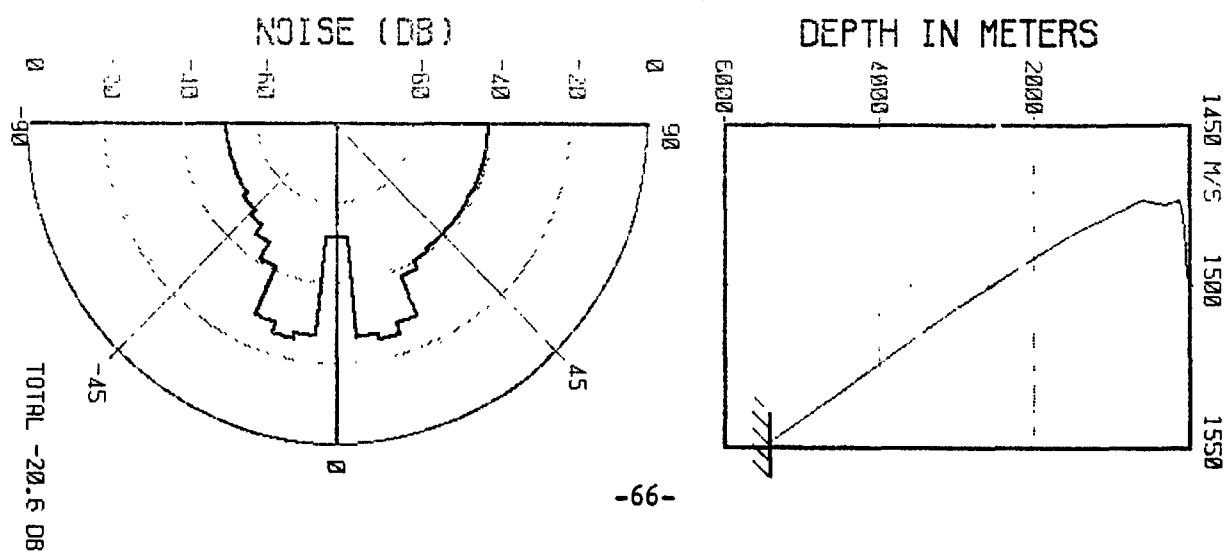
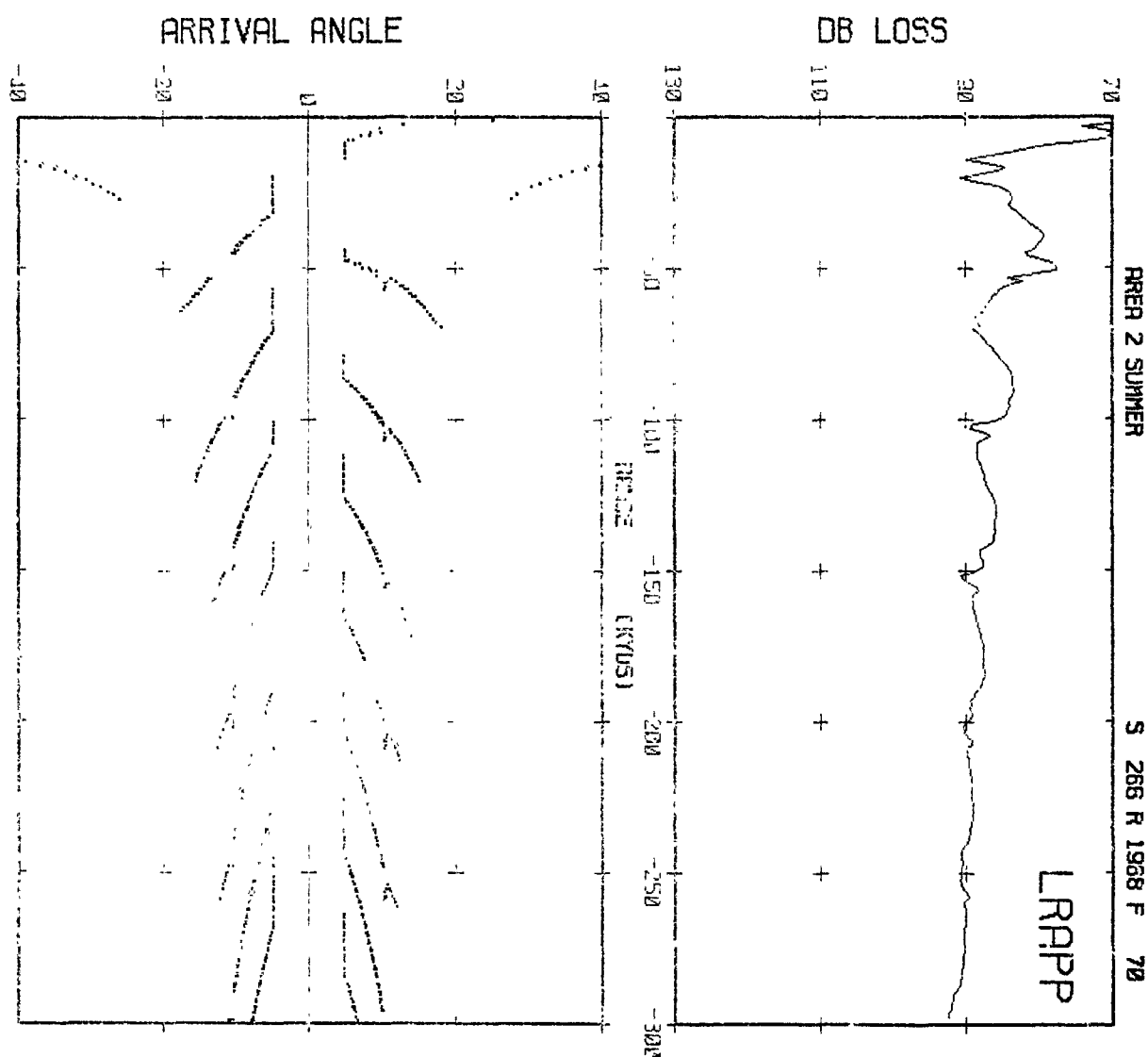


DEPTH IN METERS



NOISE (DB)



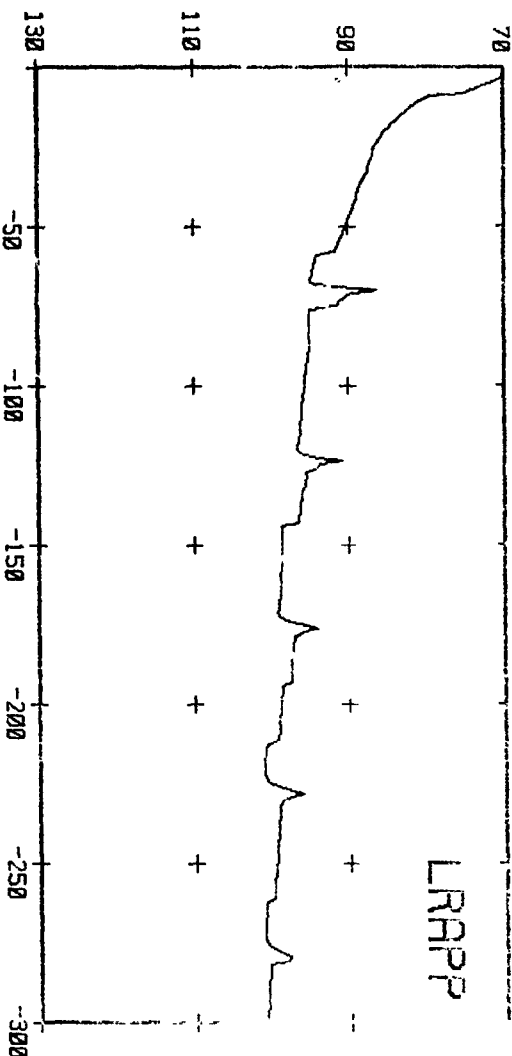


PRIER 2 SUMMER

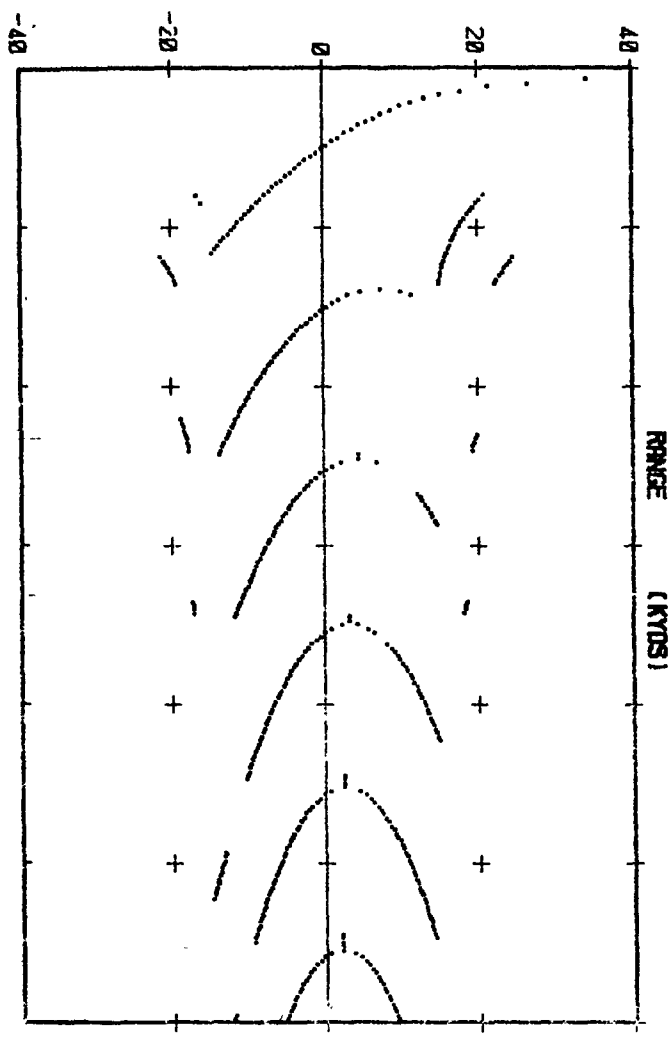
S 28 R 7674 F 78

LRAPP

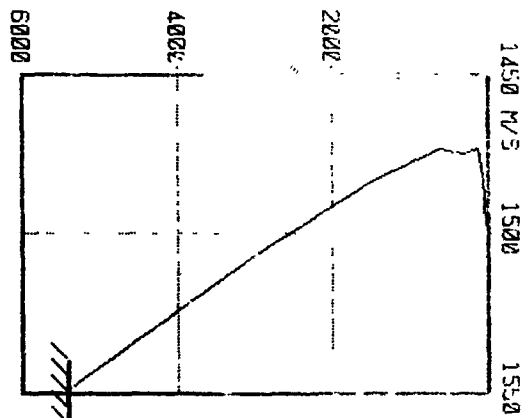
DB LOSS



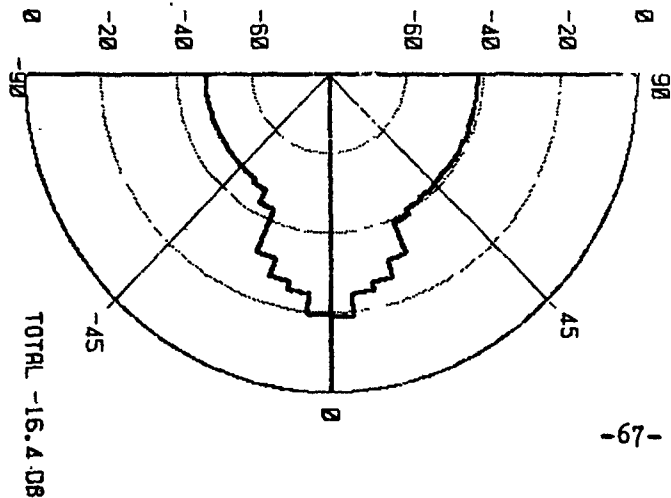
ARRIVAL ANGLE



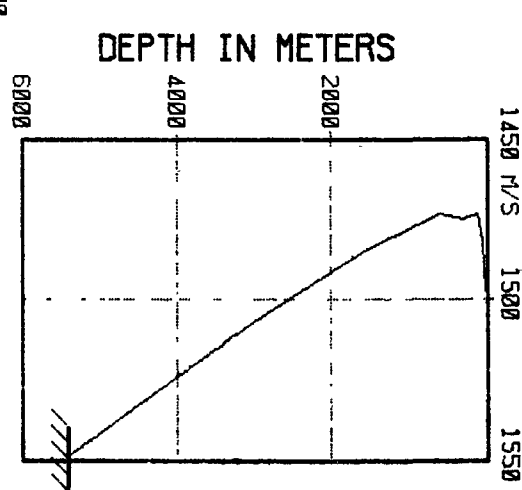
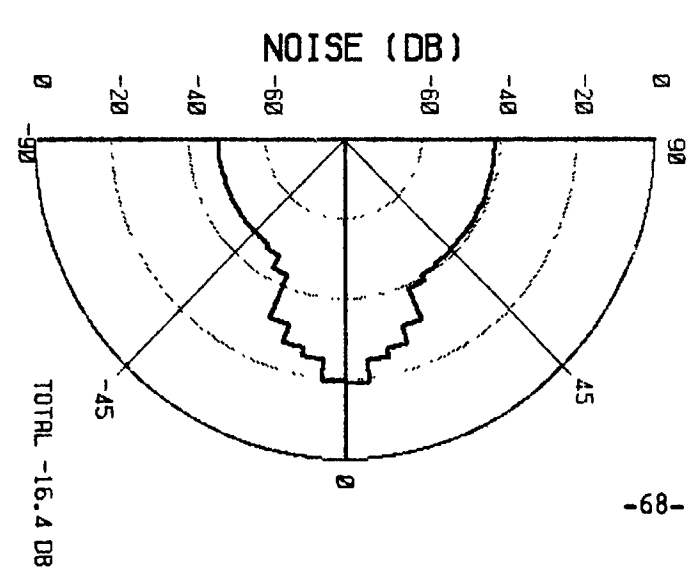
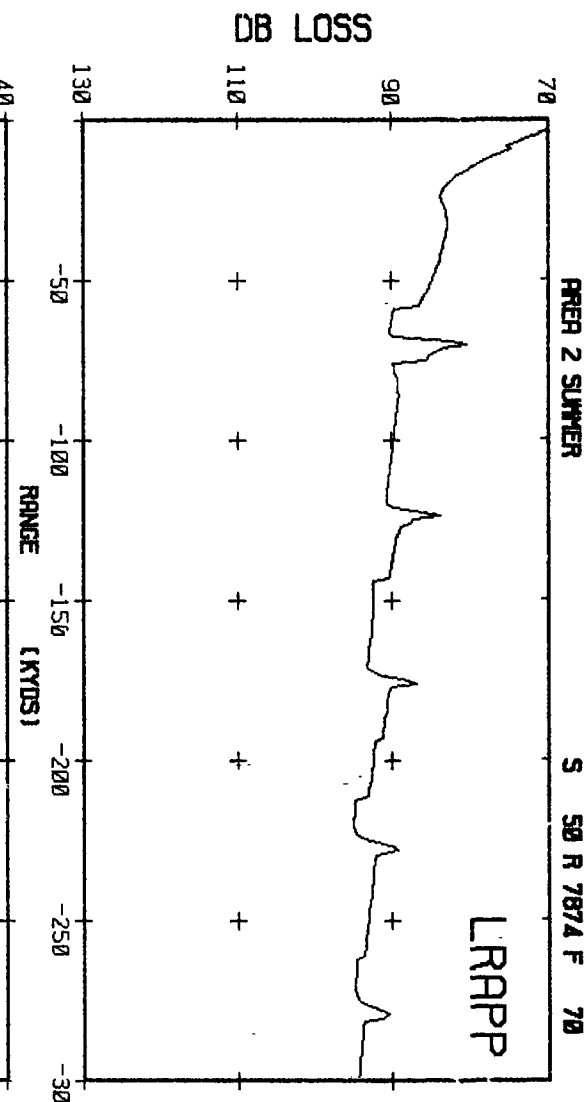
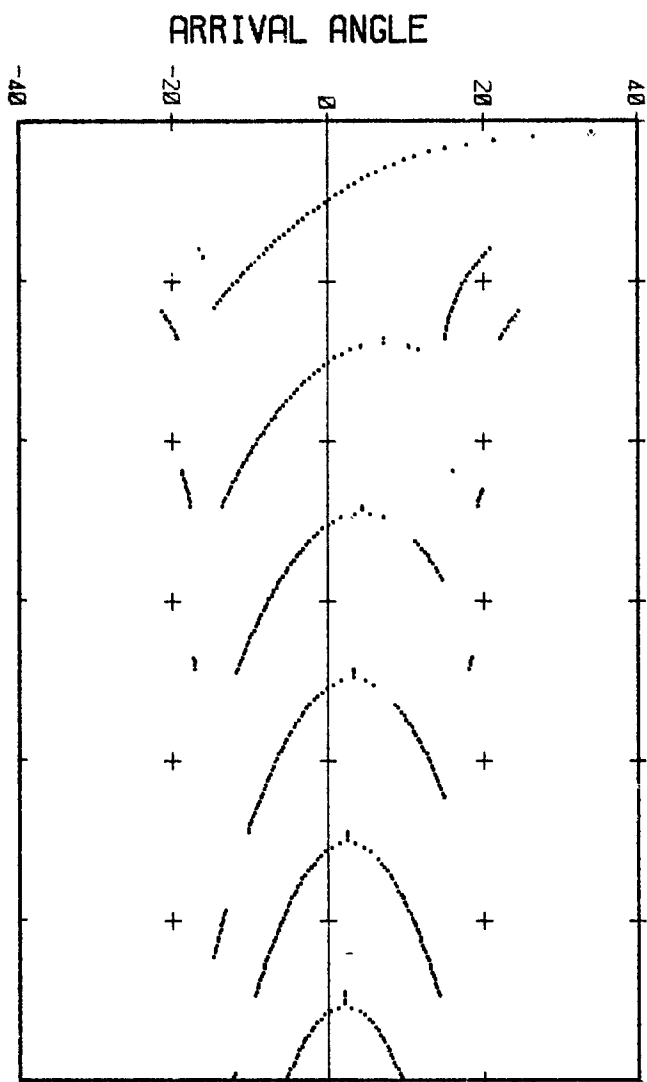
DEPTH IN METERS



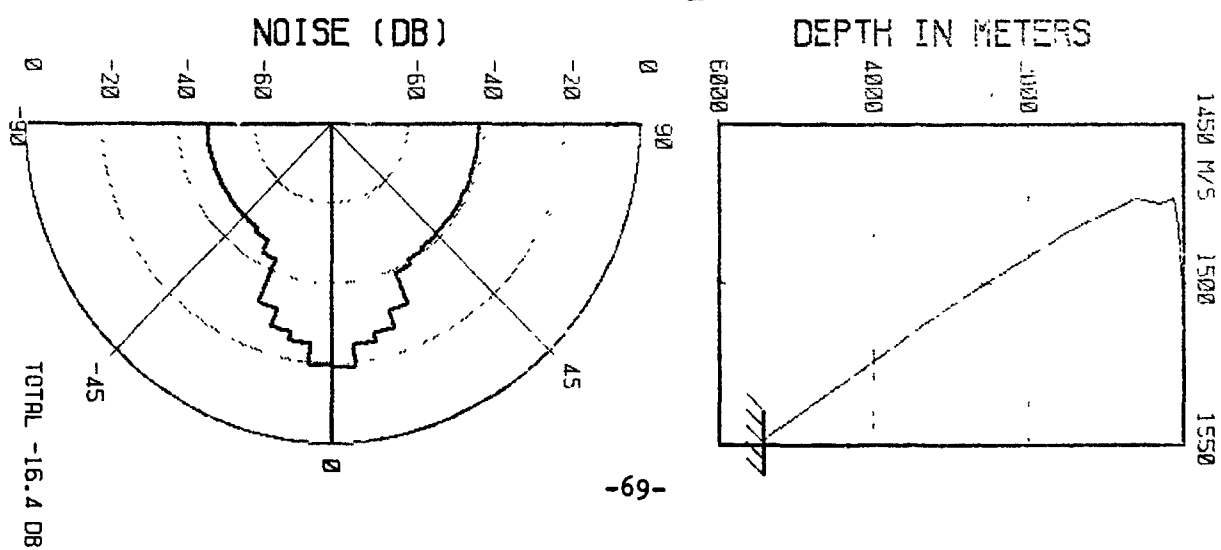
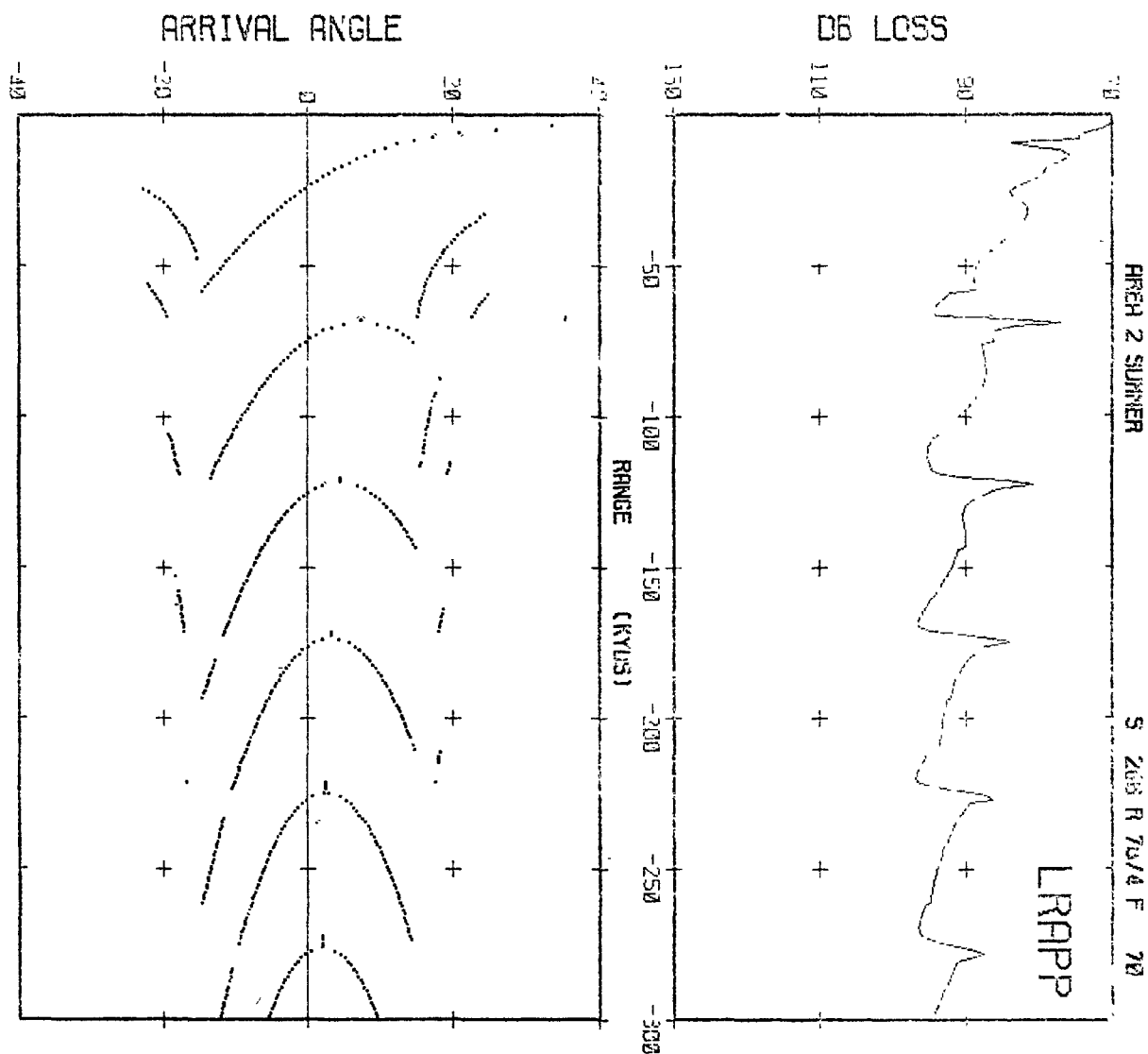
NOISE (DB)



TOTAL -16.4 DB



1450 M/S



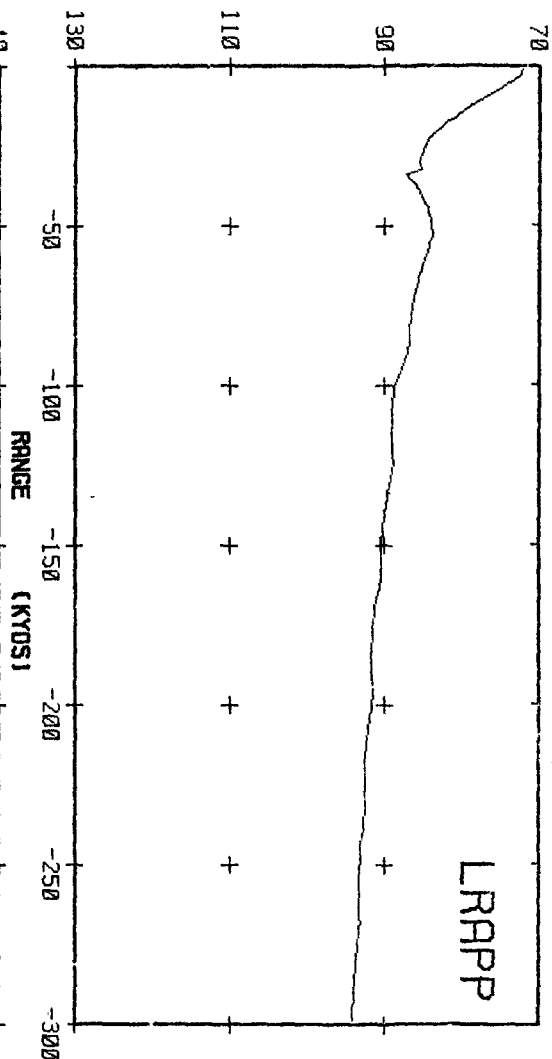


ARRER 2 SUMMER

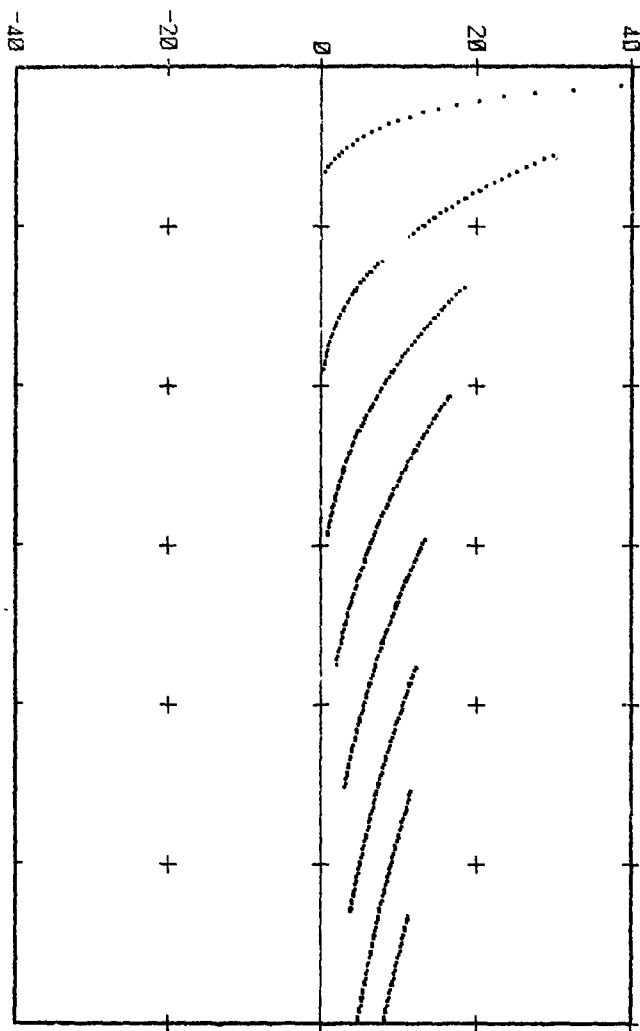
S 50 R17759 F 70

LRAPP

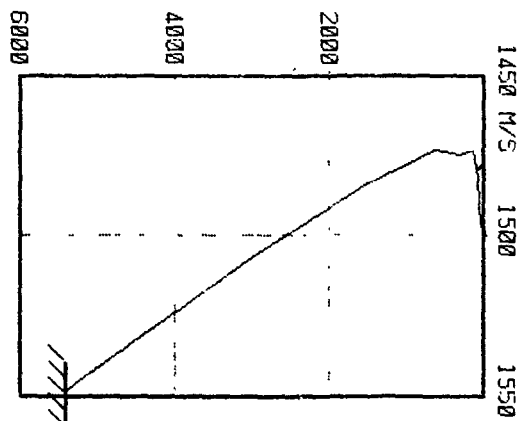
DB LOSS



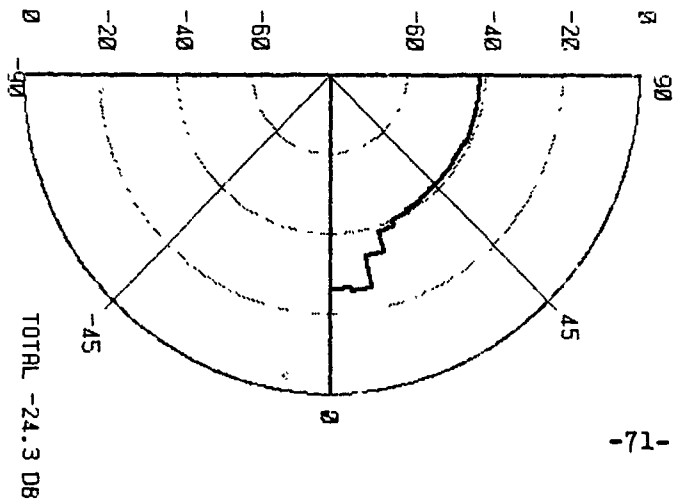
ARRIVAL ANGLE



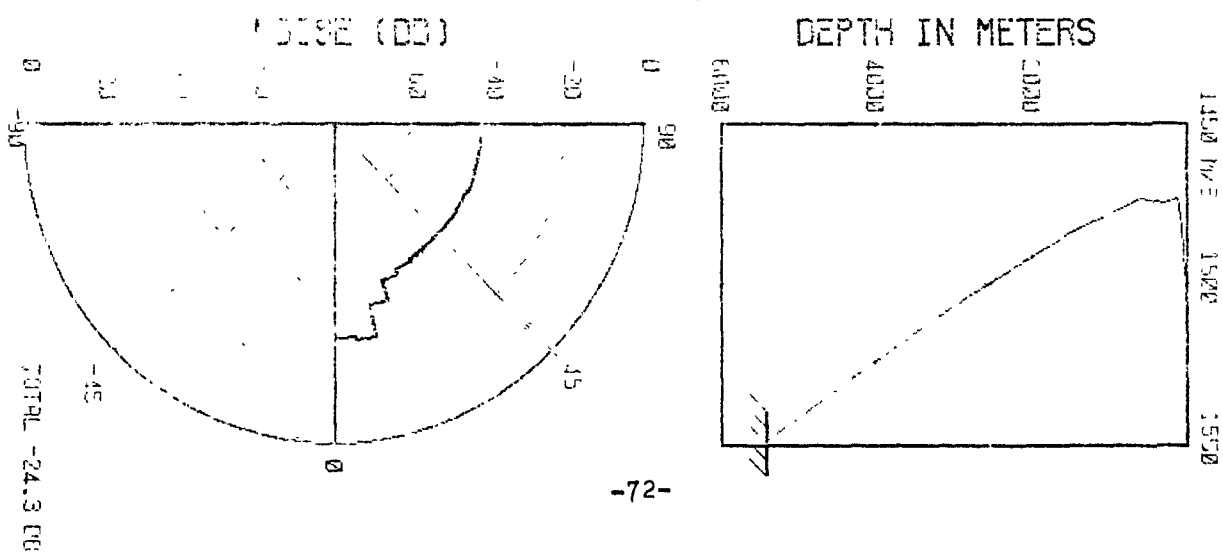
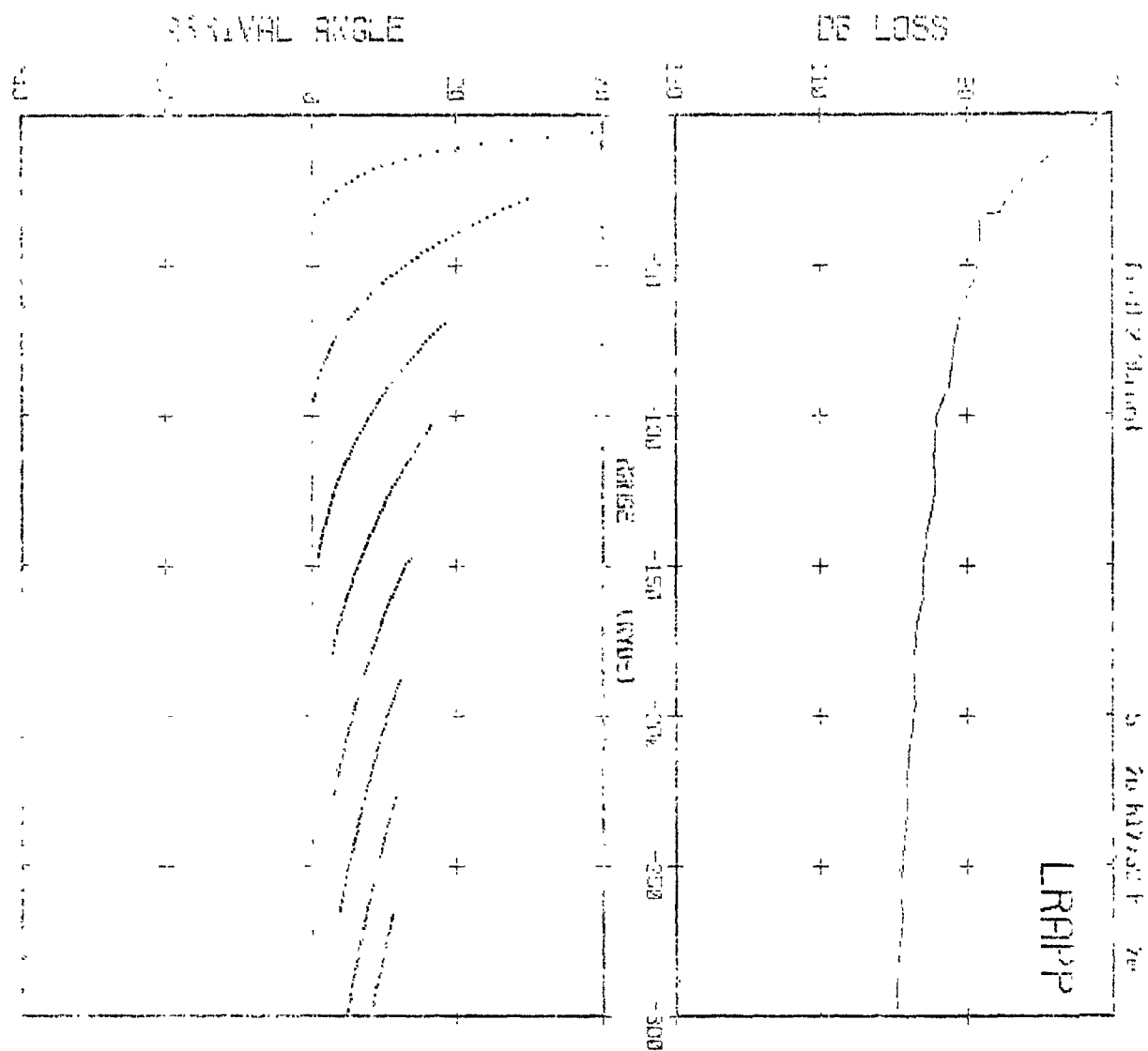
DEPTH IN METERS

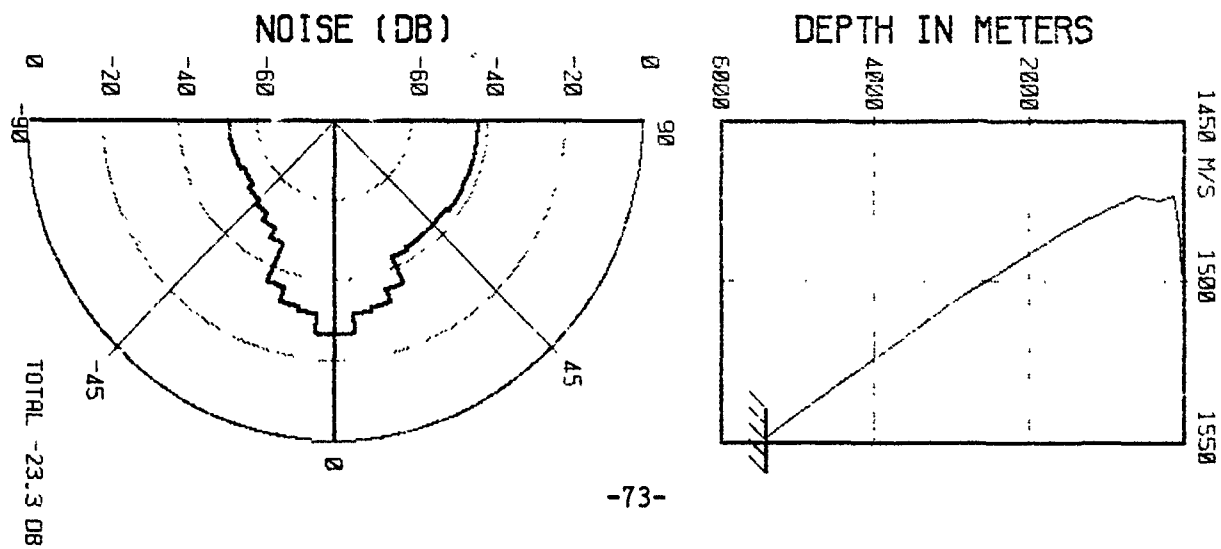
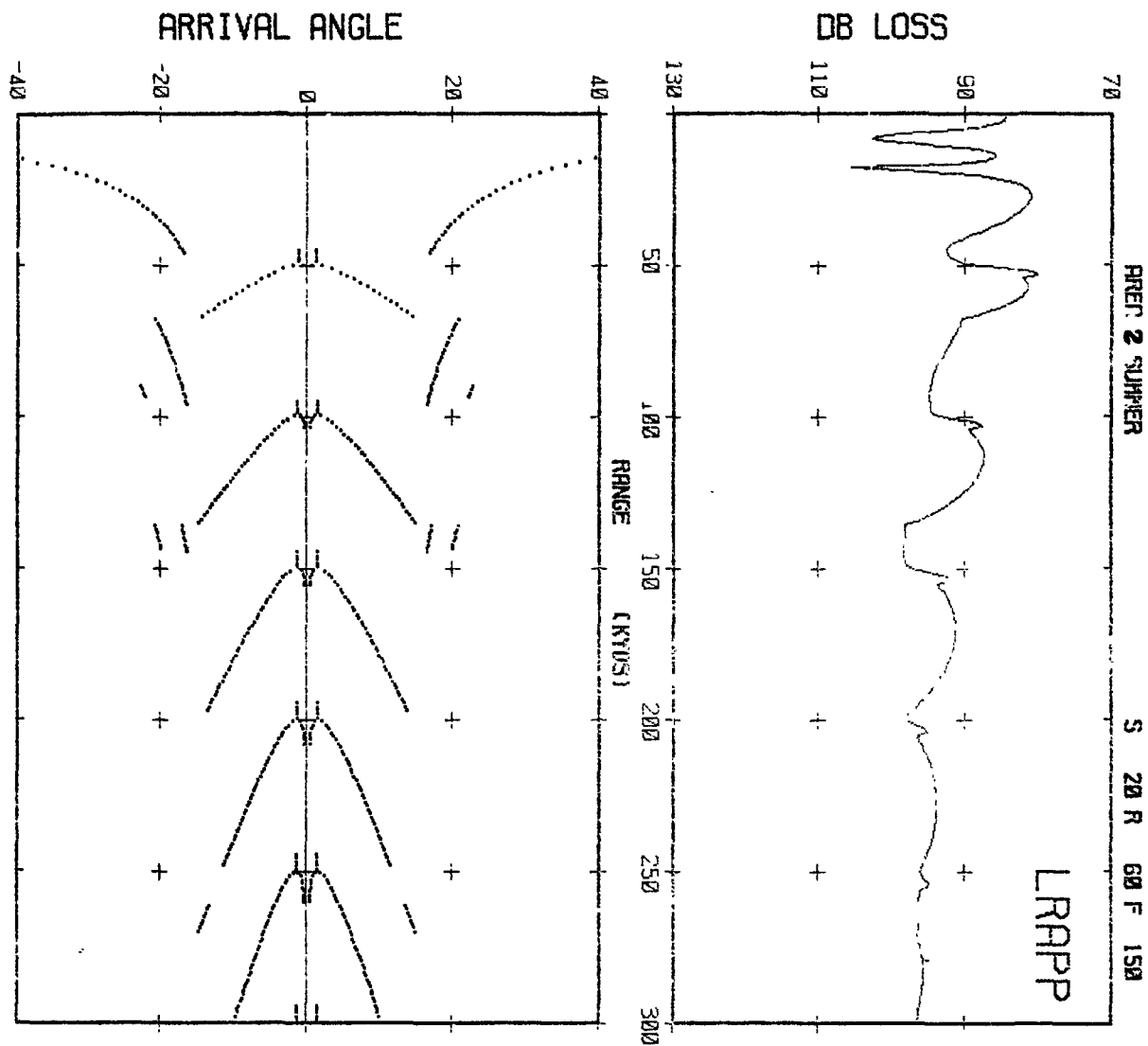


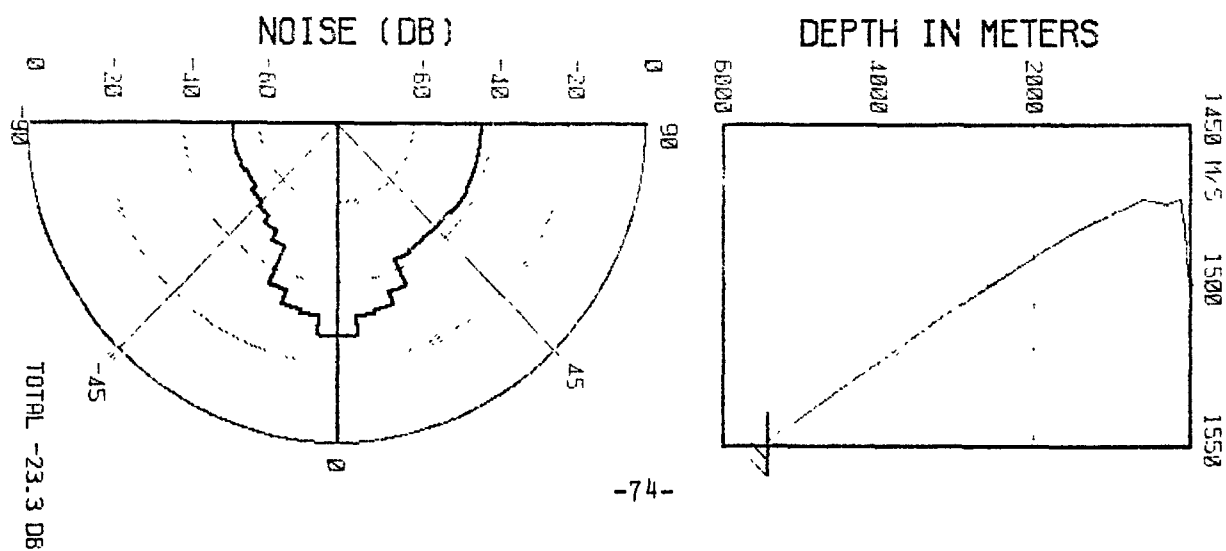
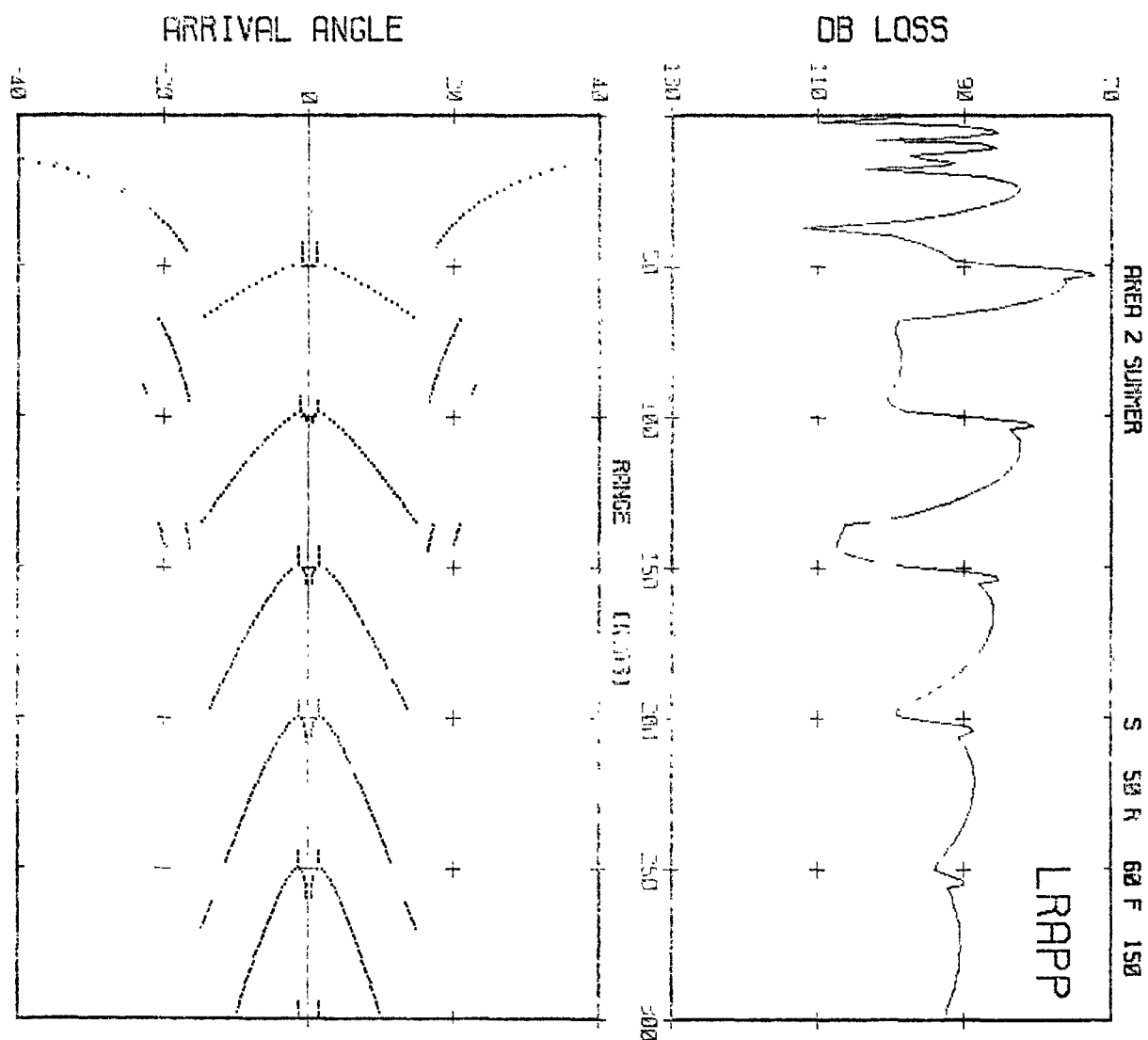
NOISE (DB)

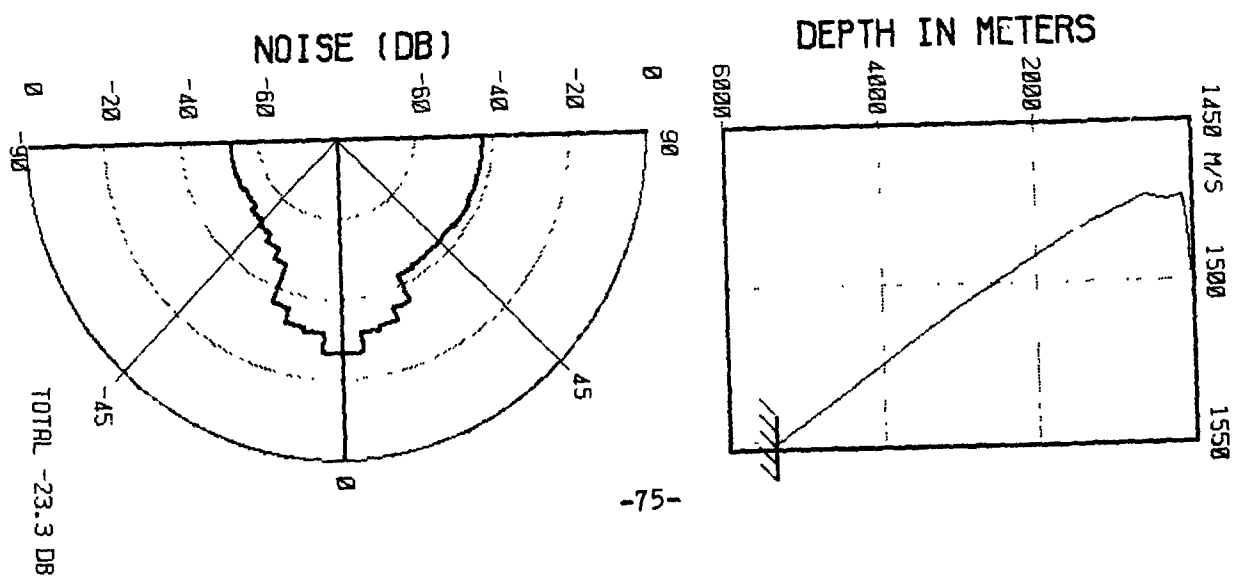
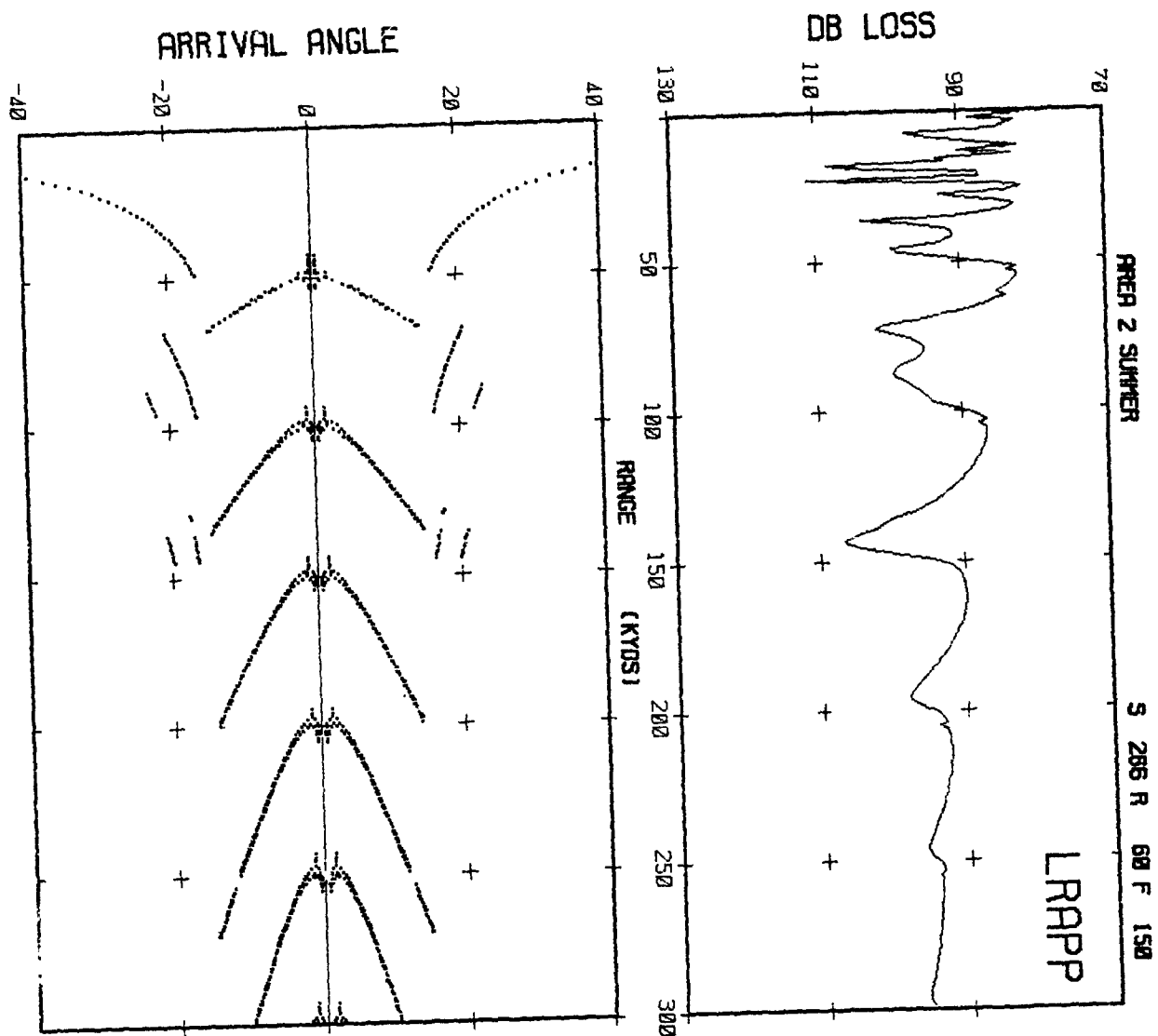


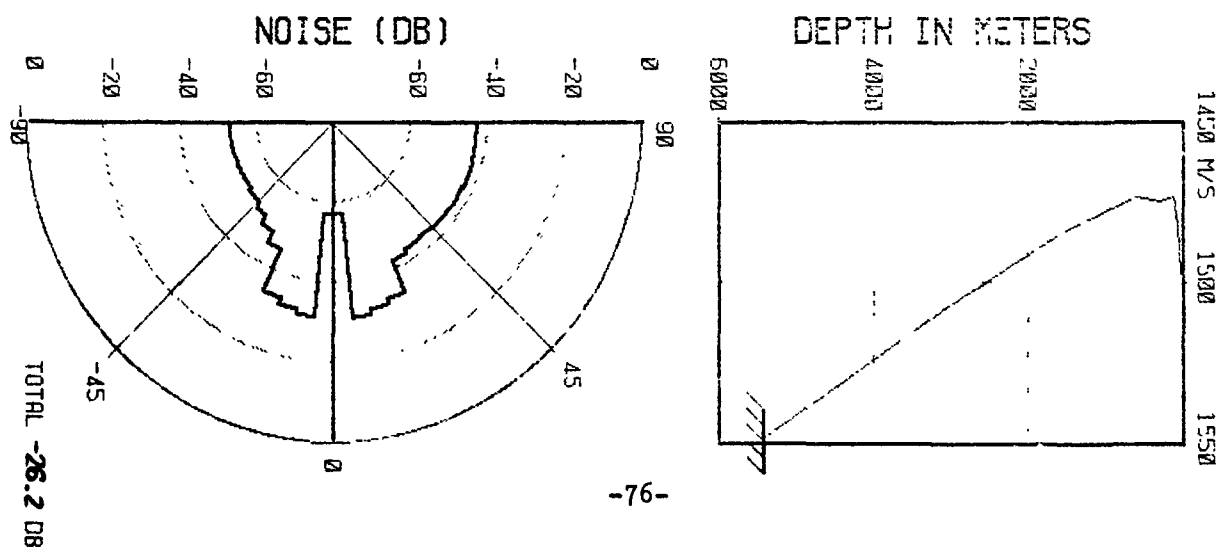
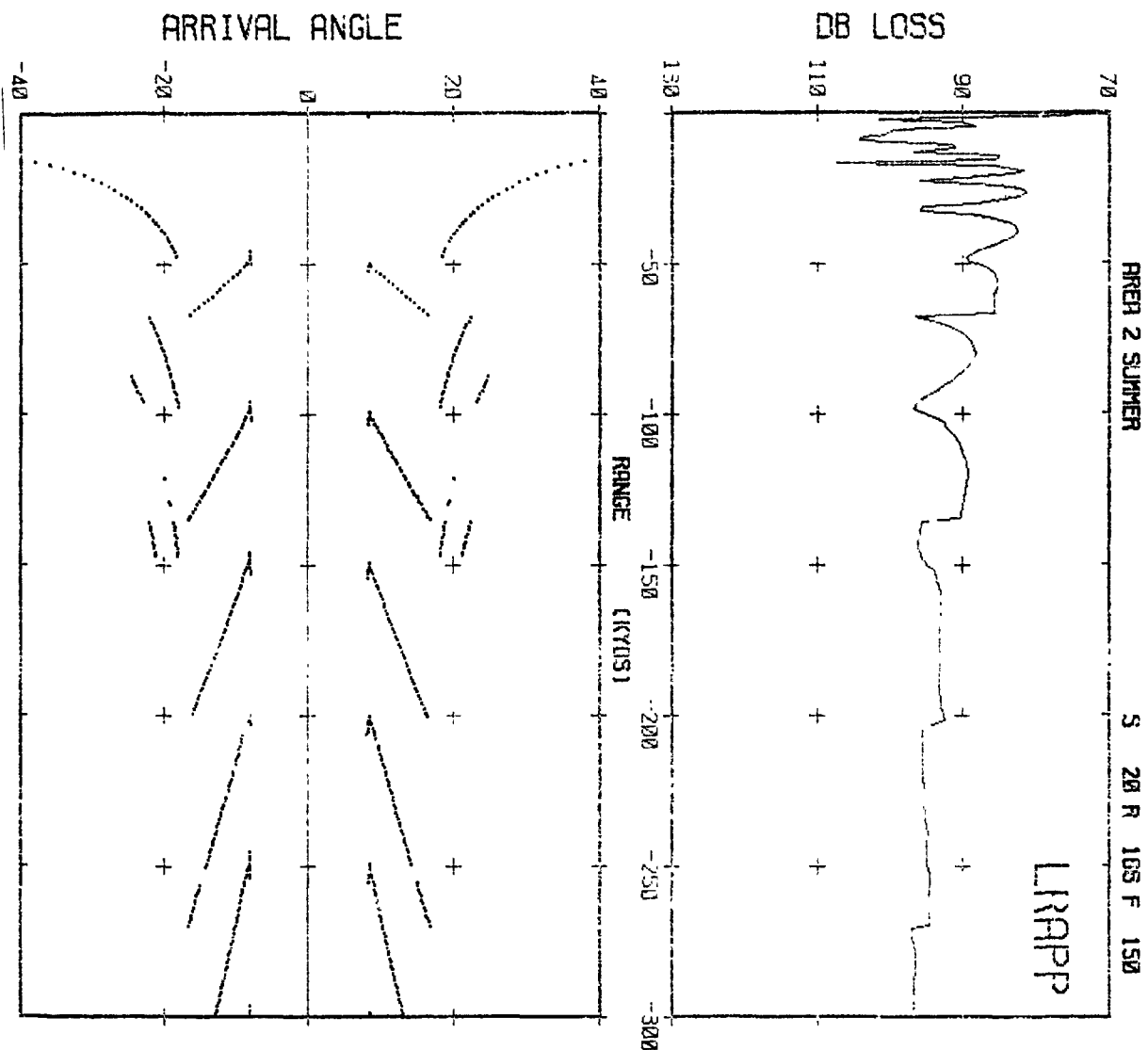


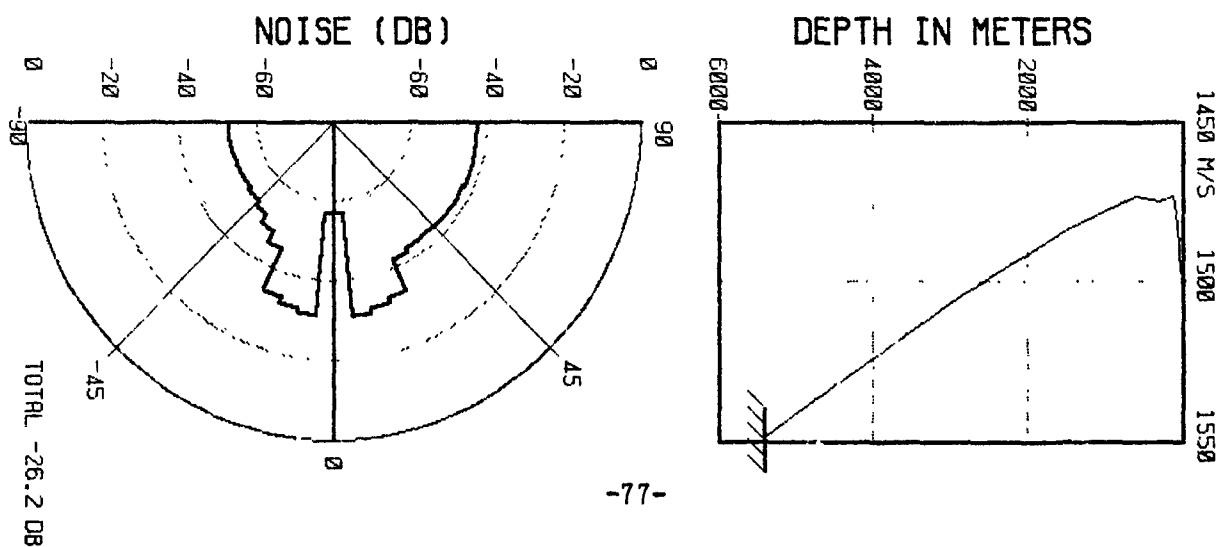
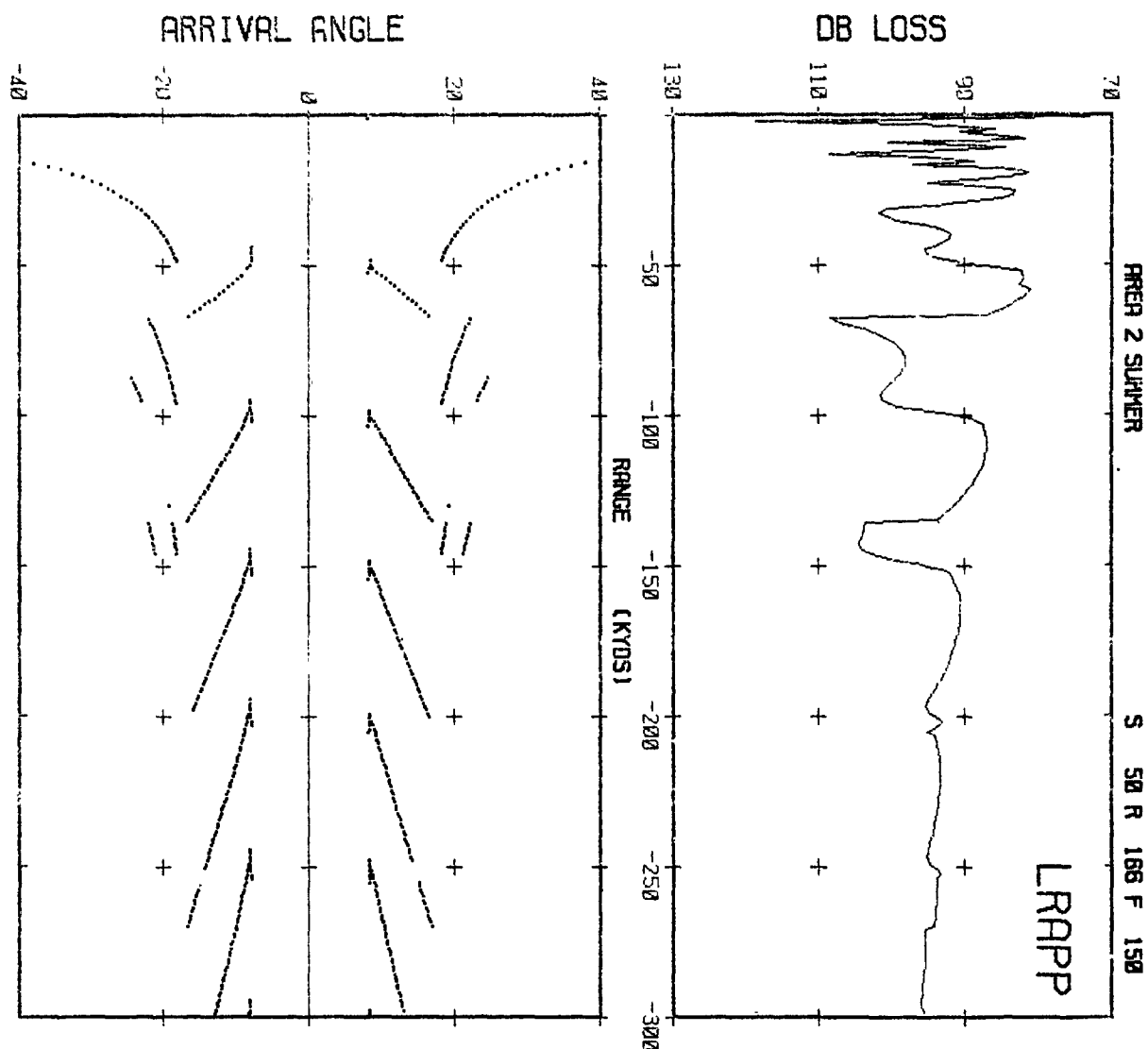






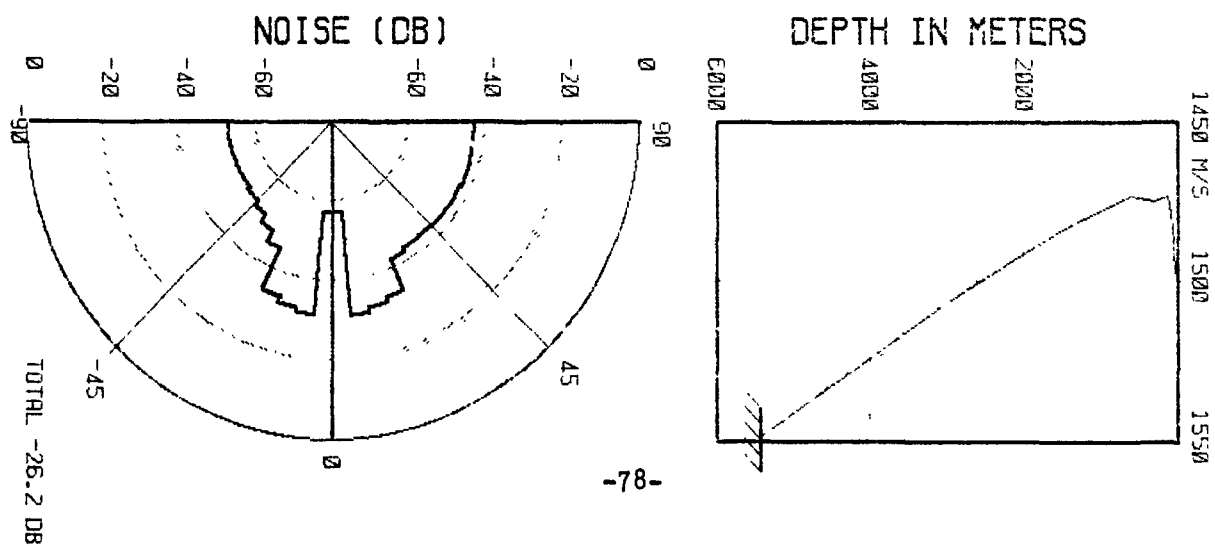
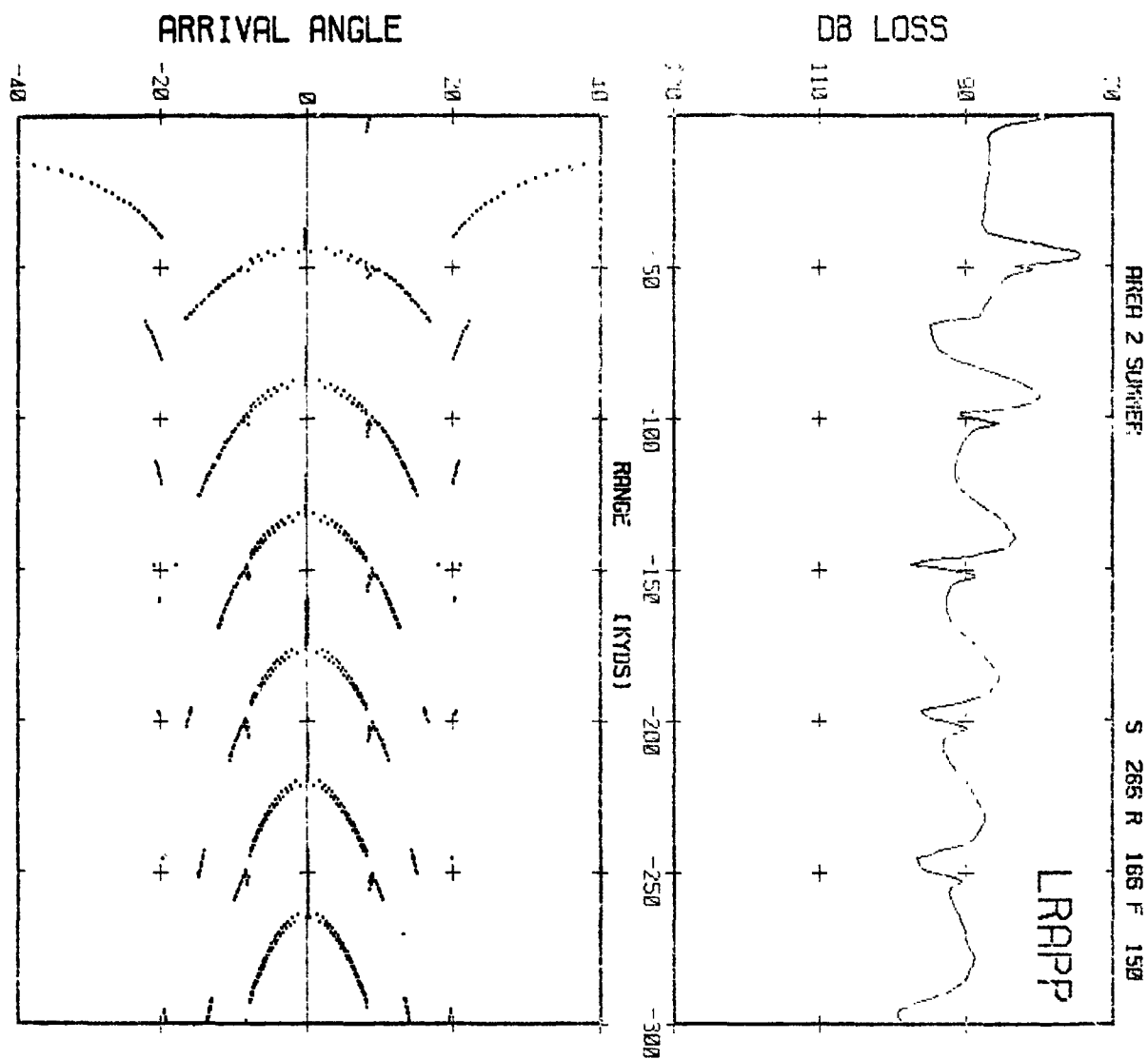


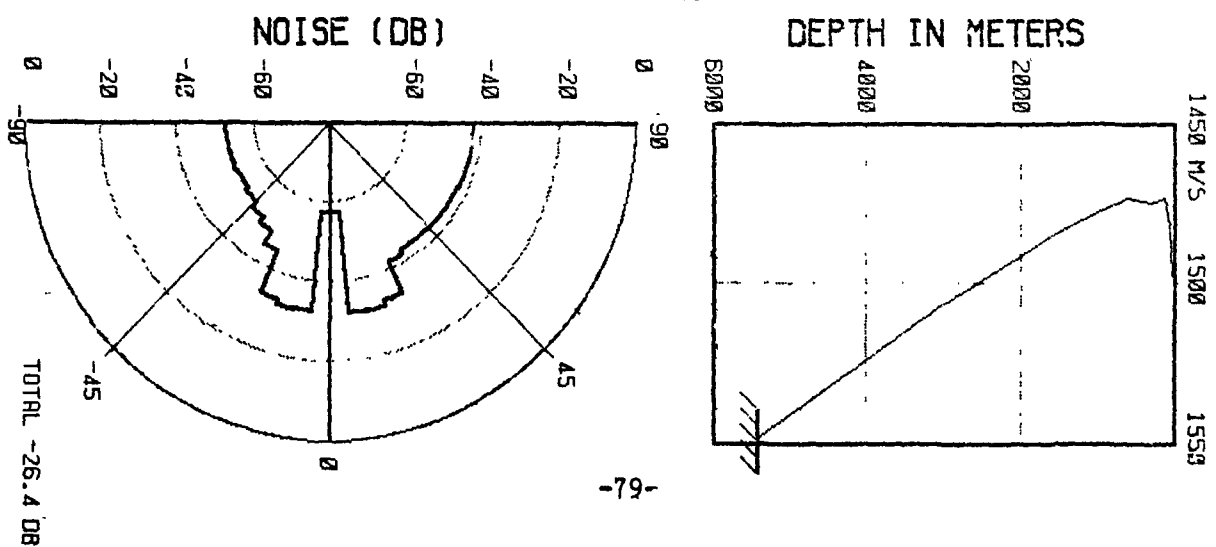
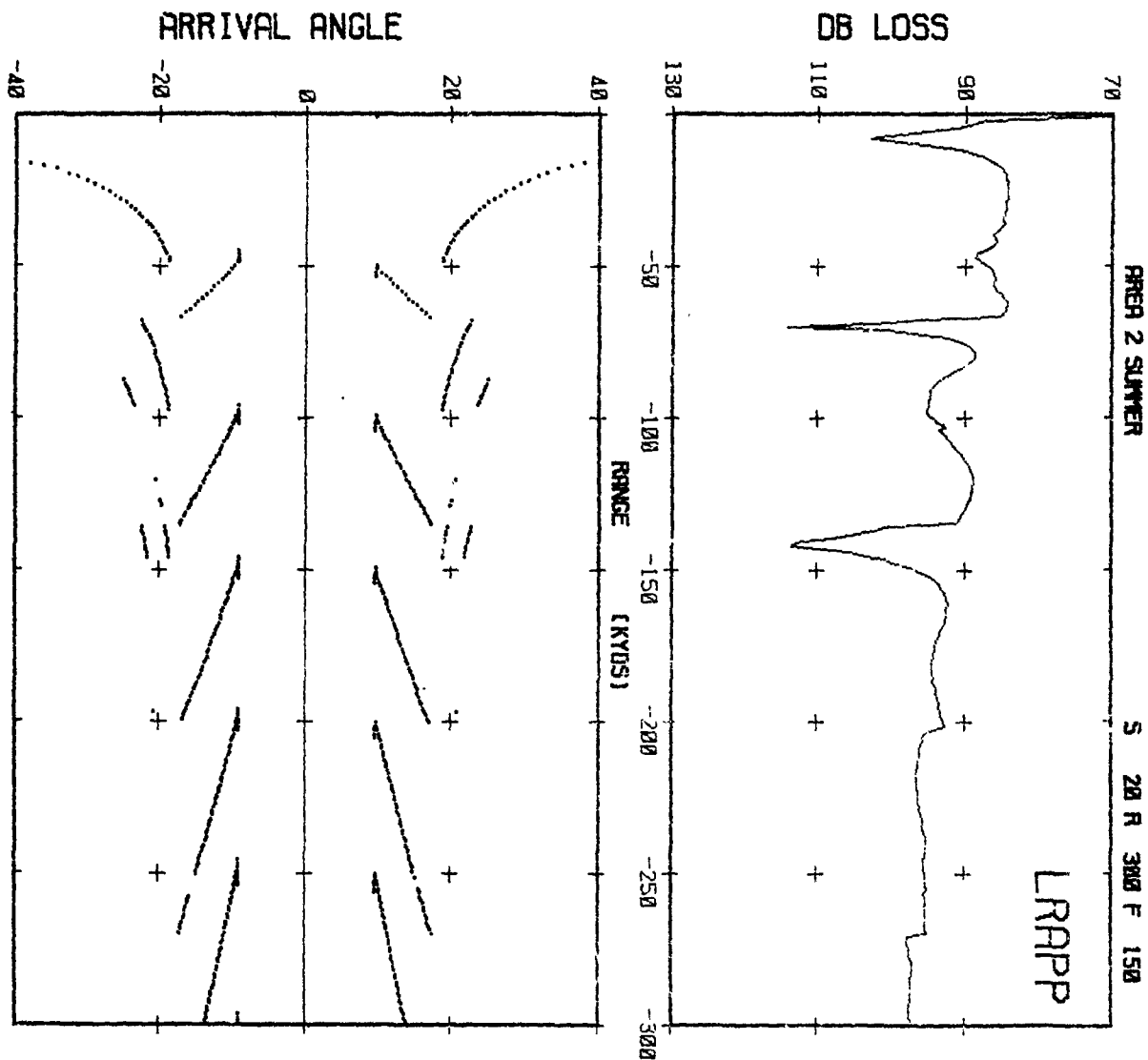




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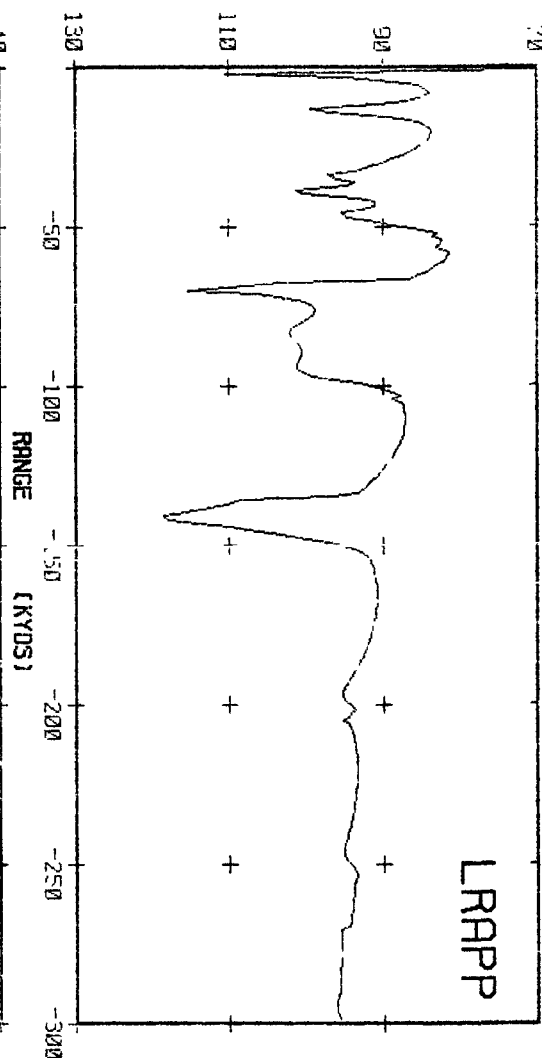


AREA 2 SUMMER

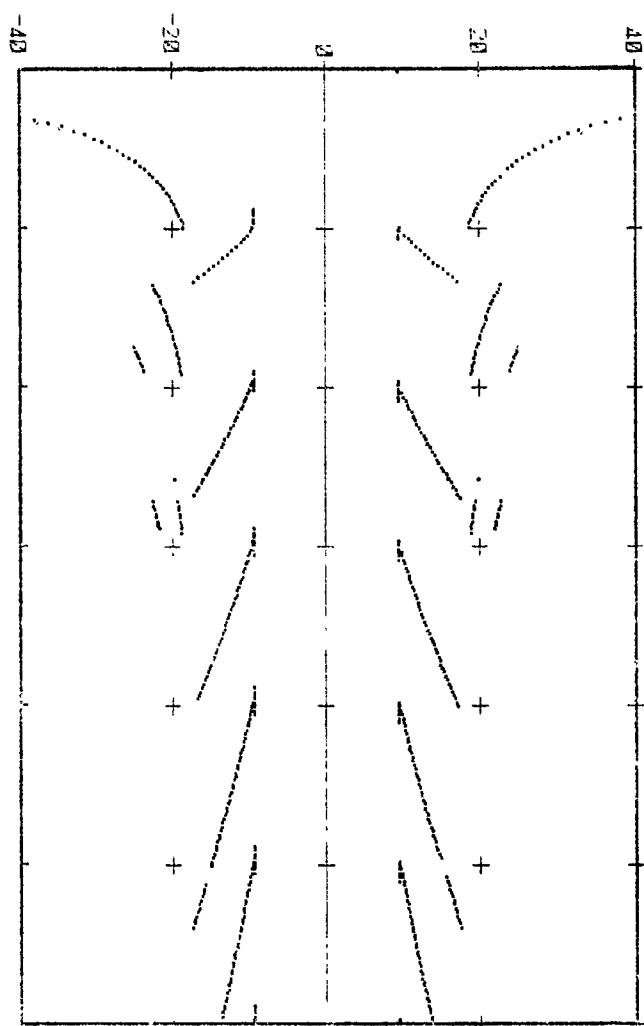
S 50 R 300 F 150

1450 M/S 1500 1550

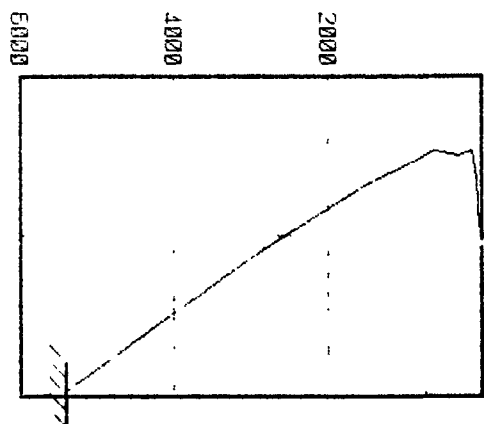
DB LOSS



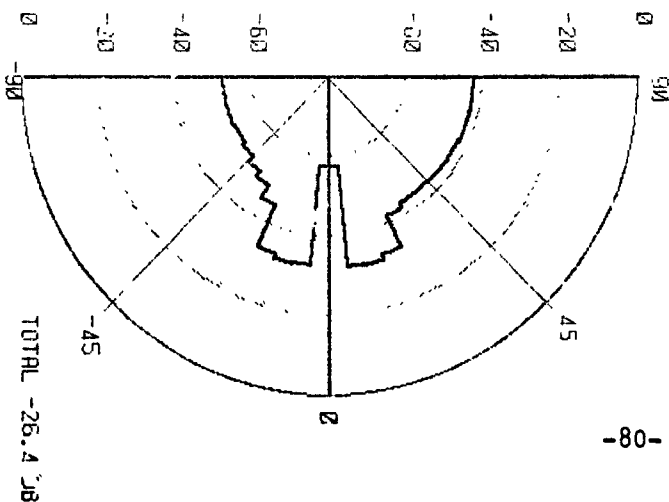
ARRIVAL ANGLE



DEPTH IN METERS



NOISE (DB)

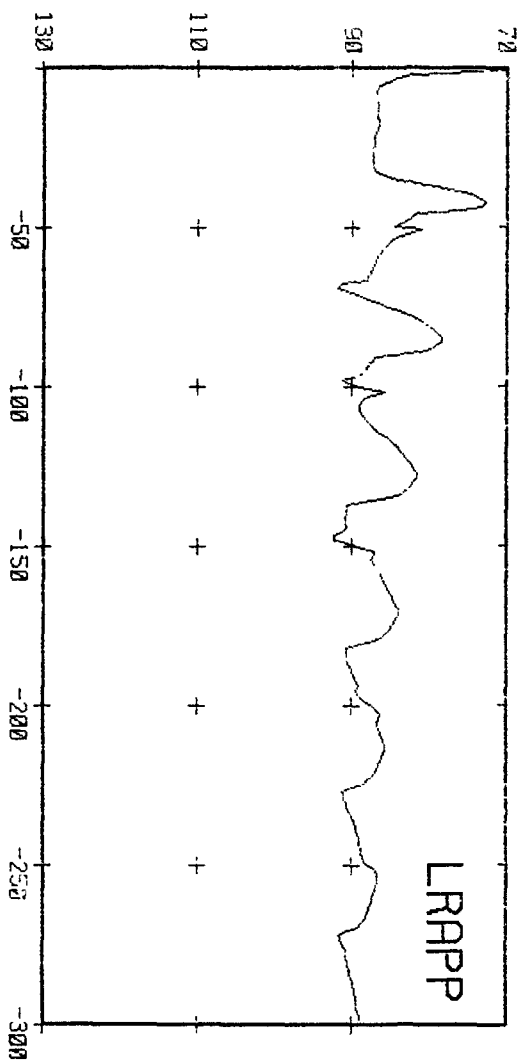


AREA 2 SUMMER

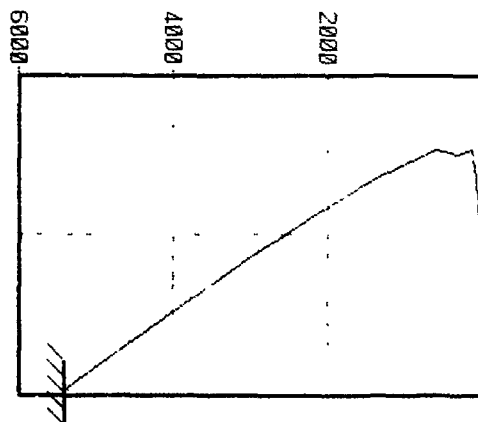
S 266 R 300 F 150

1450 M/S 1500 1550

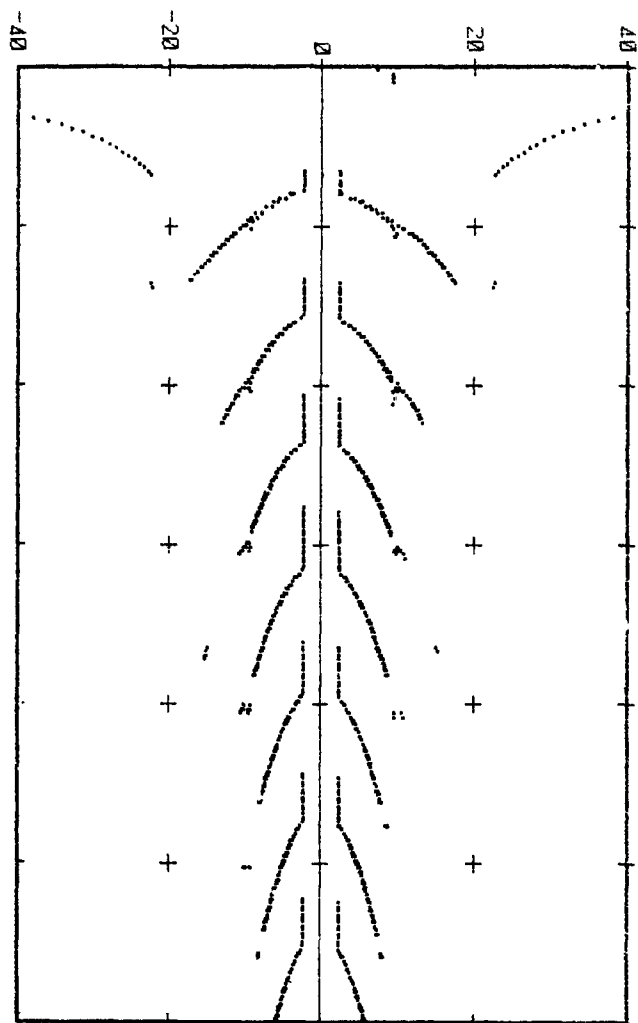
DB LOSS



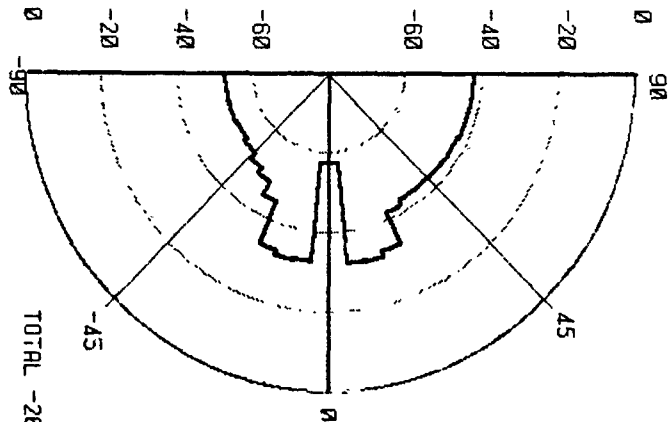
DEPTH IN METERS



ARRIVAL ANGLE



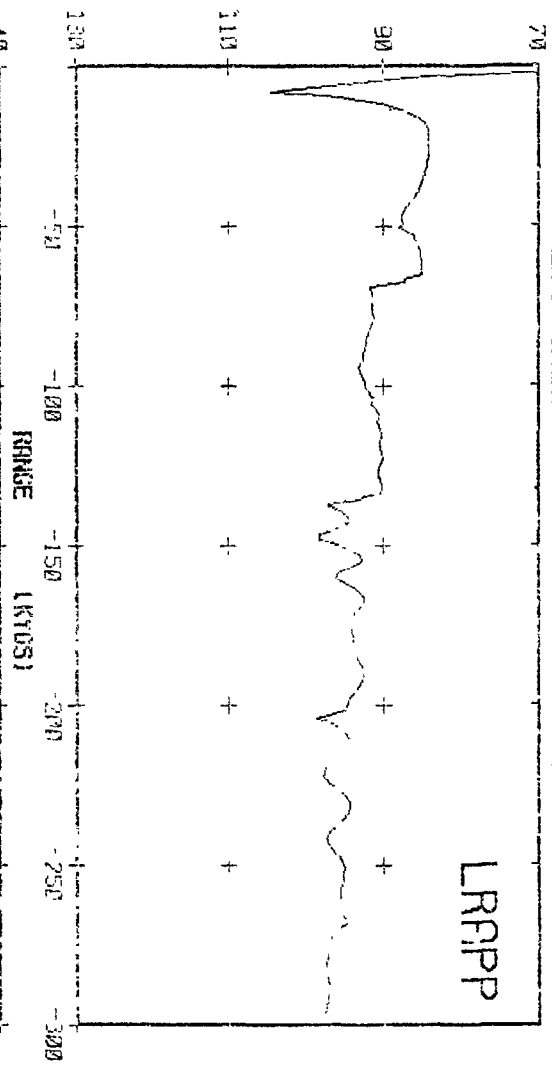
NOISE (DB)



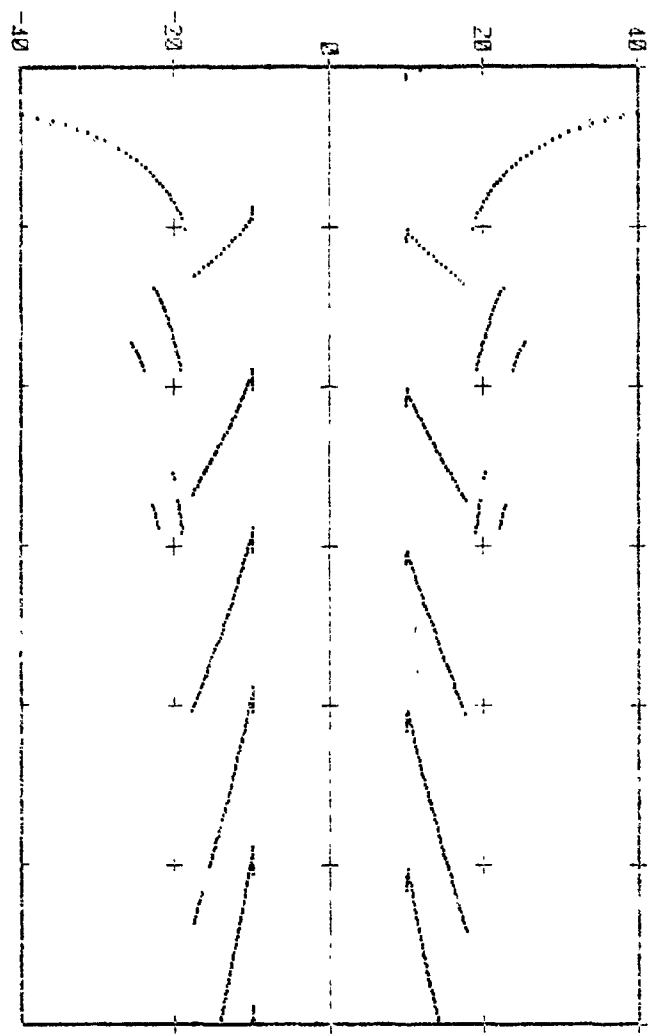
RIVER 2 SUMMER

S 20 R 1000 F 150

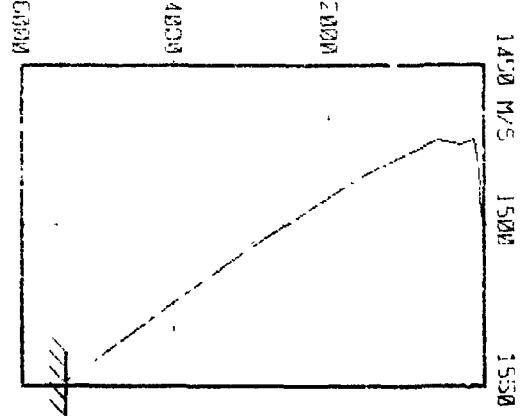
DB LOSS



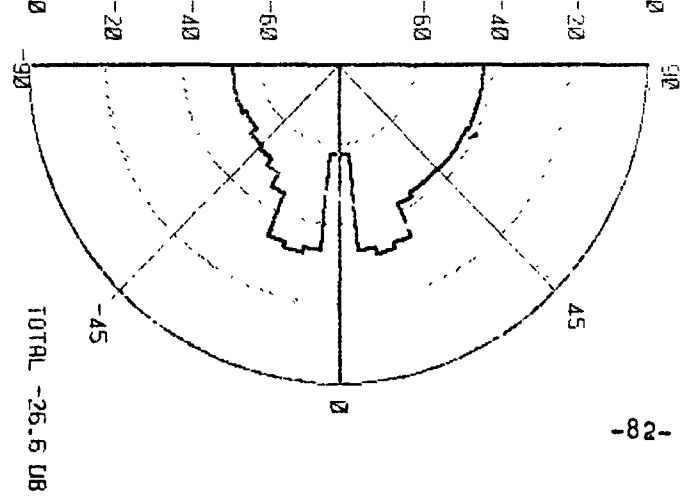
ARRIVAL ANGLE

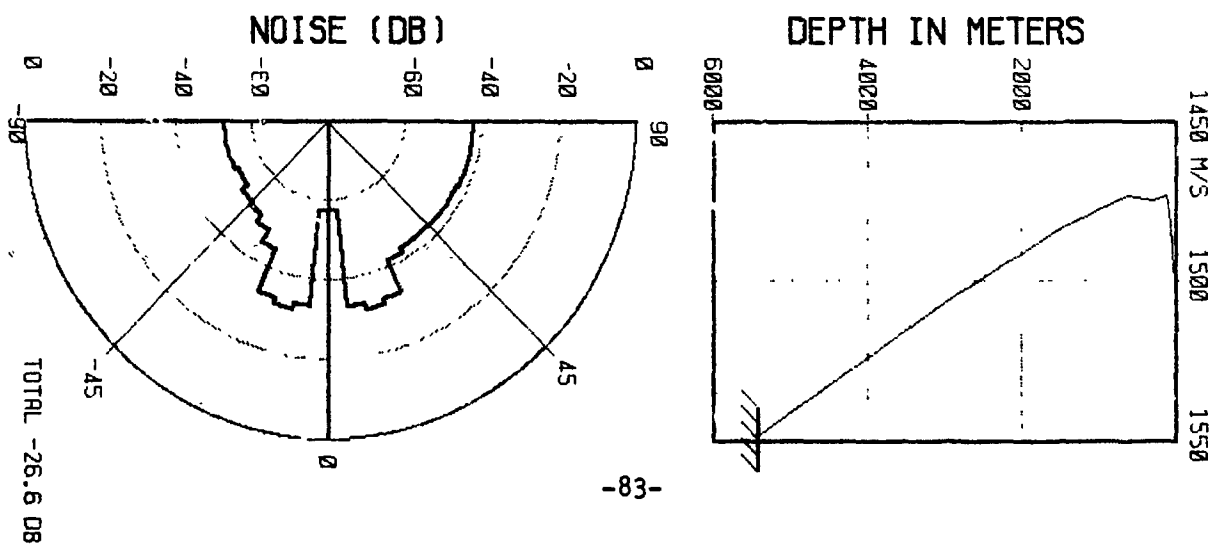
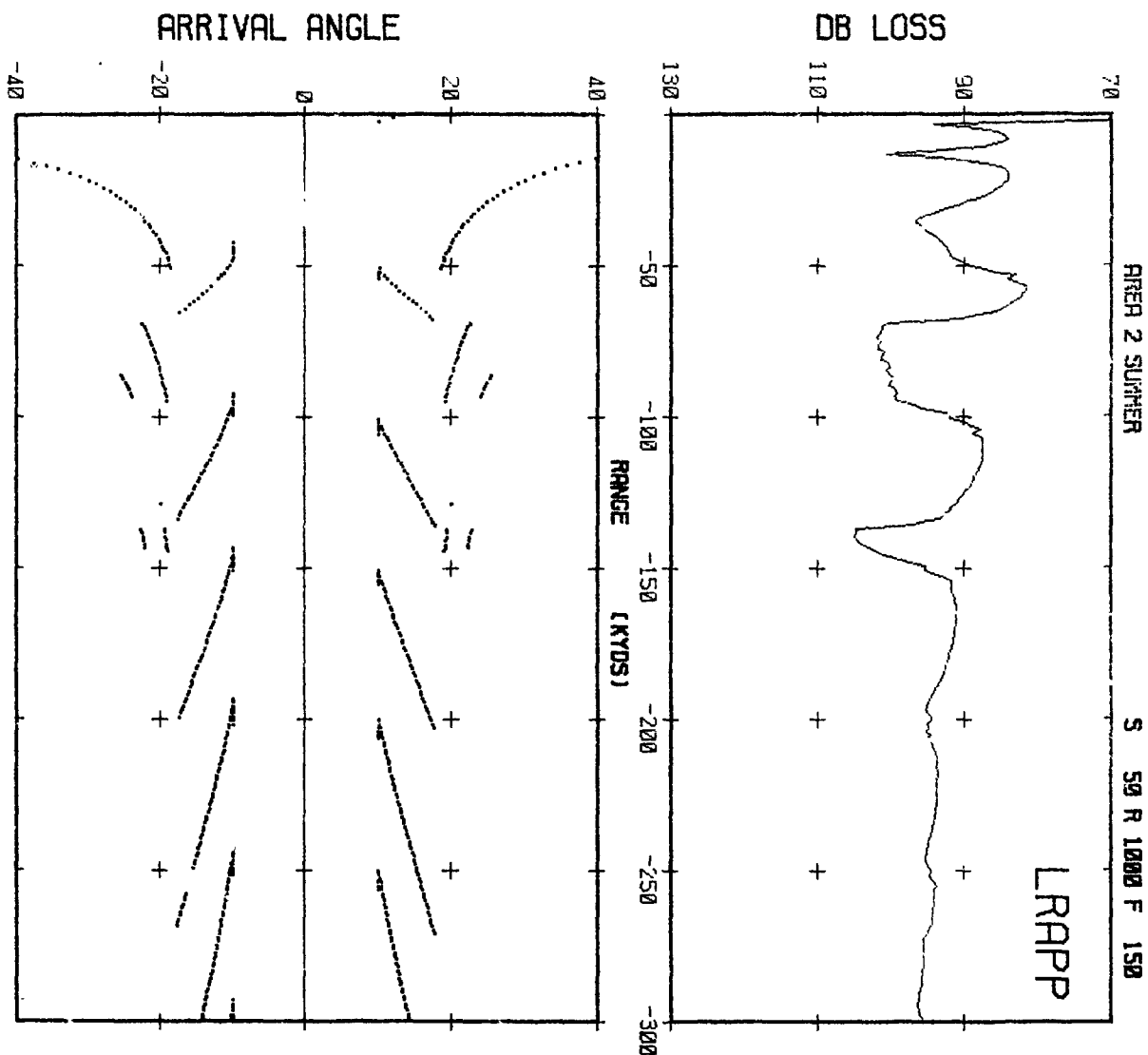


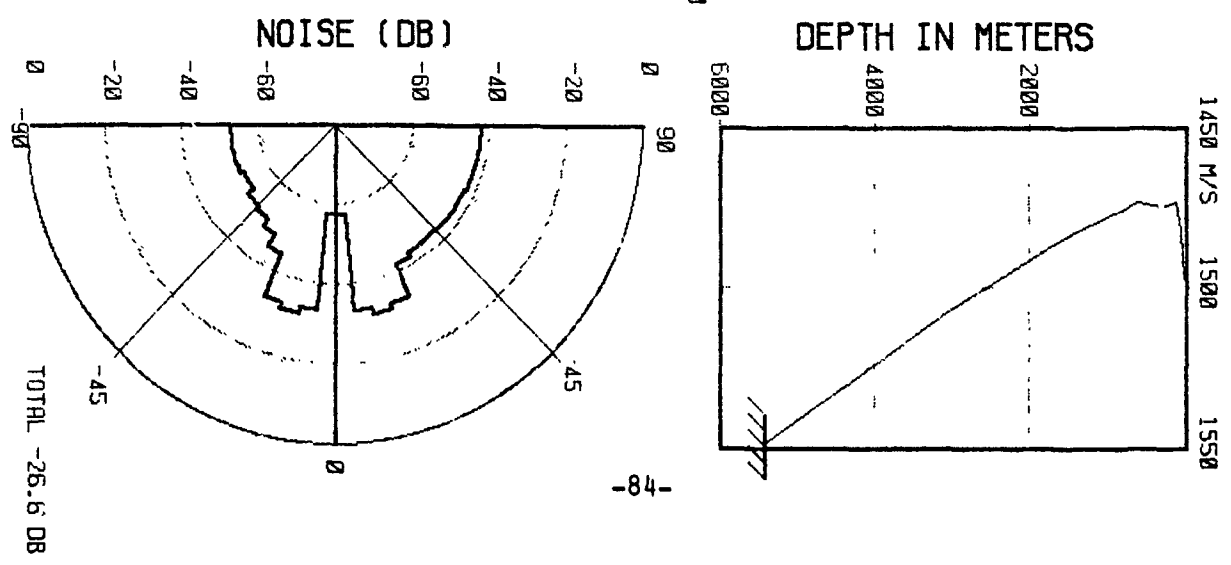
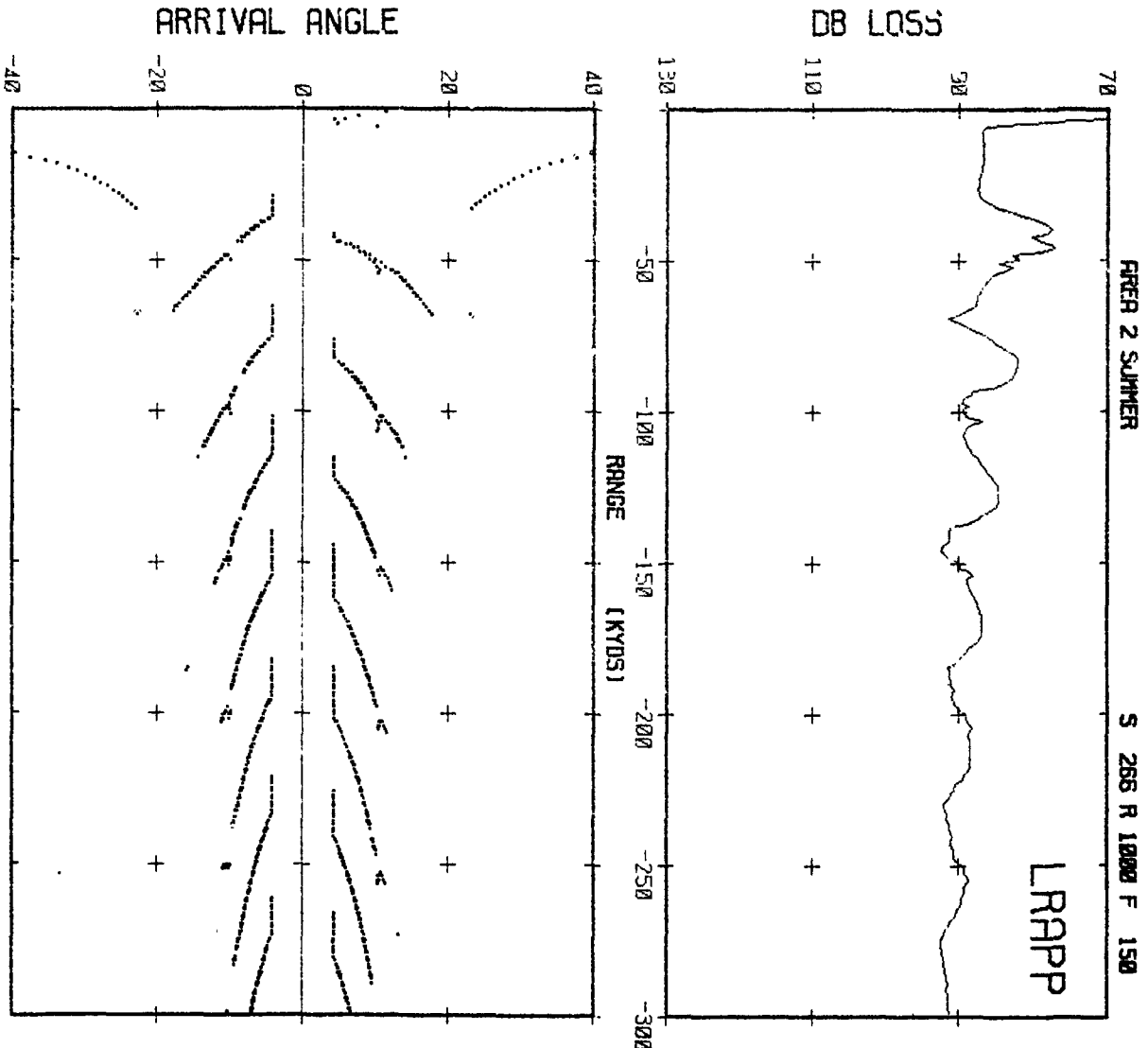
DEPTH IN METERS



NOISE (DB)





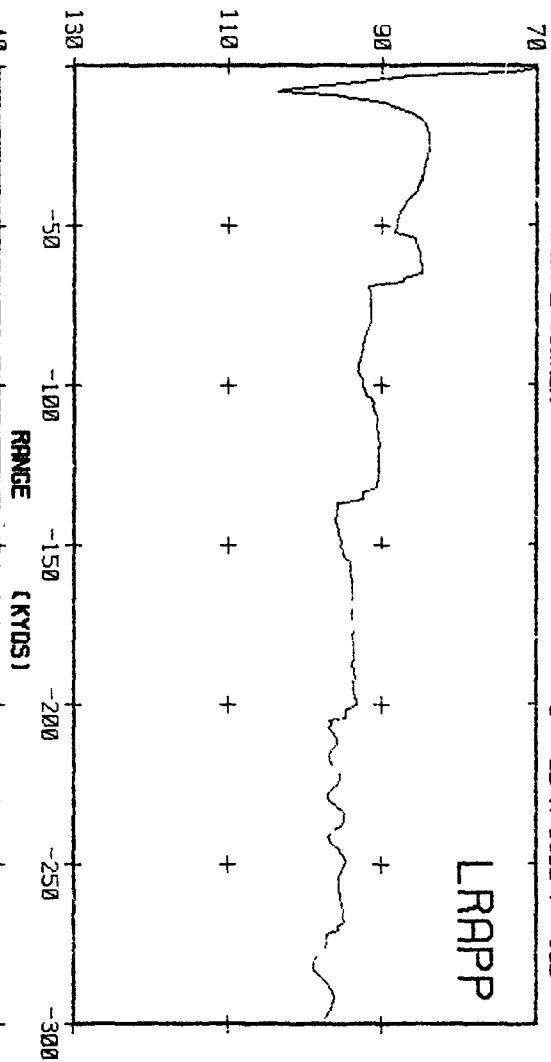


PRER 2 SUMMER

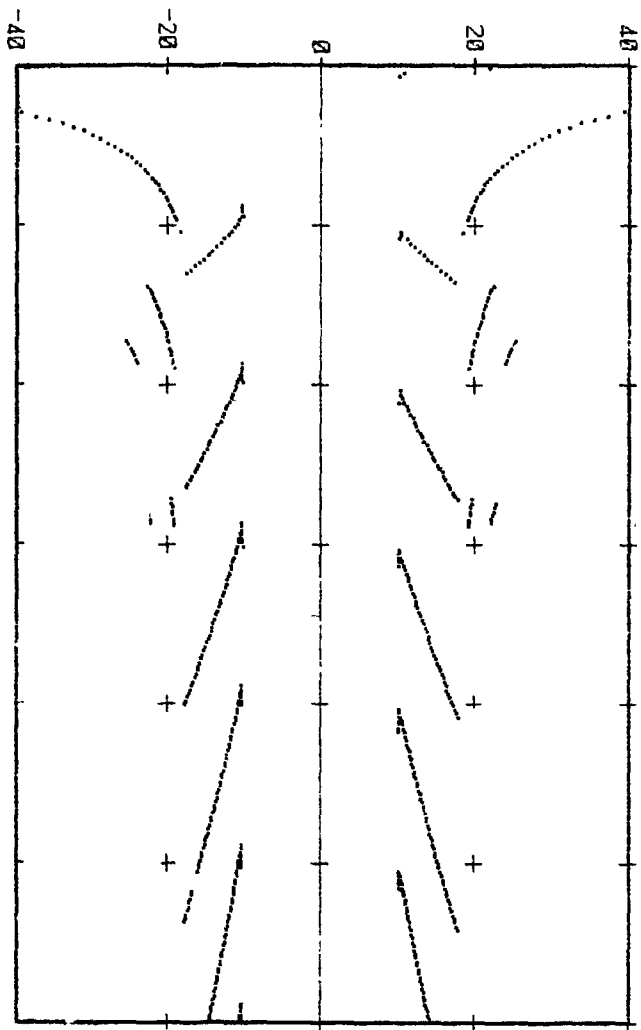
S 20 R 1500 F 150

LRAPP

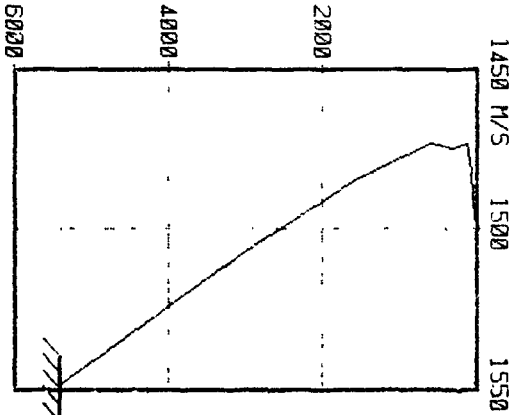
DB LOSS



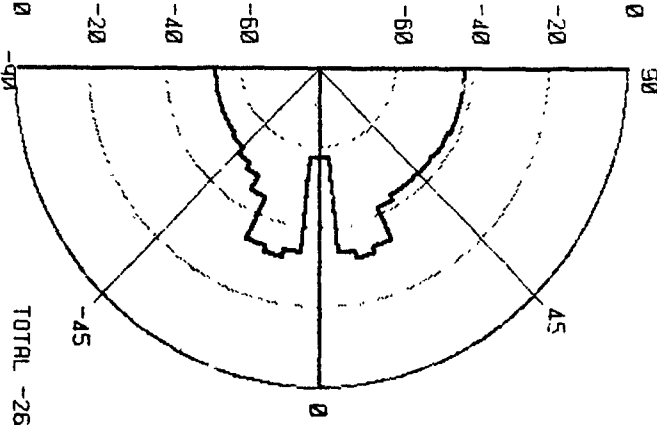
ARRIVAL ANGLE

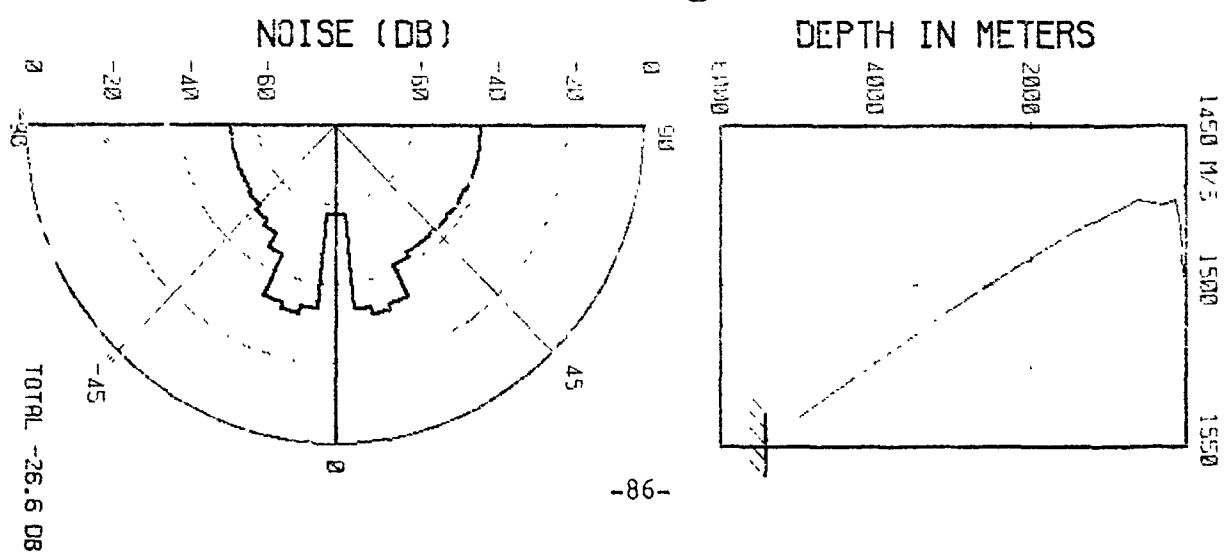
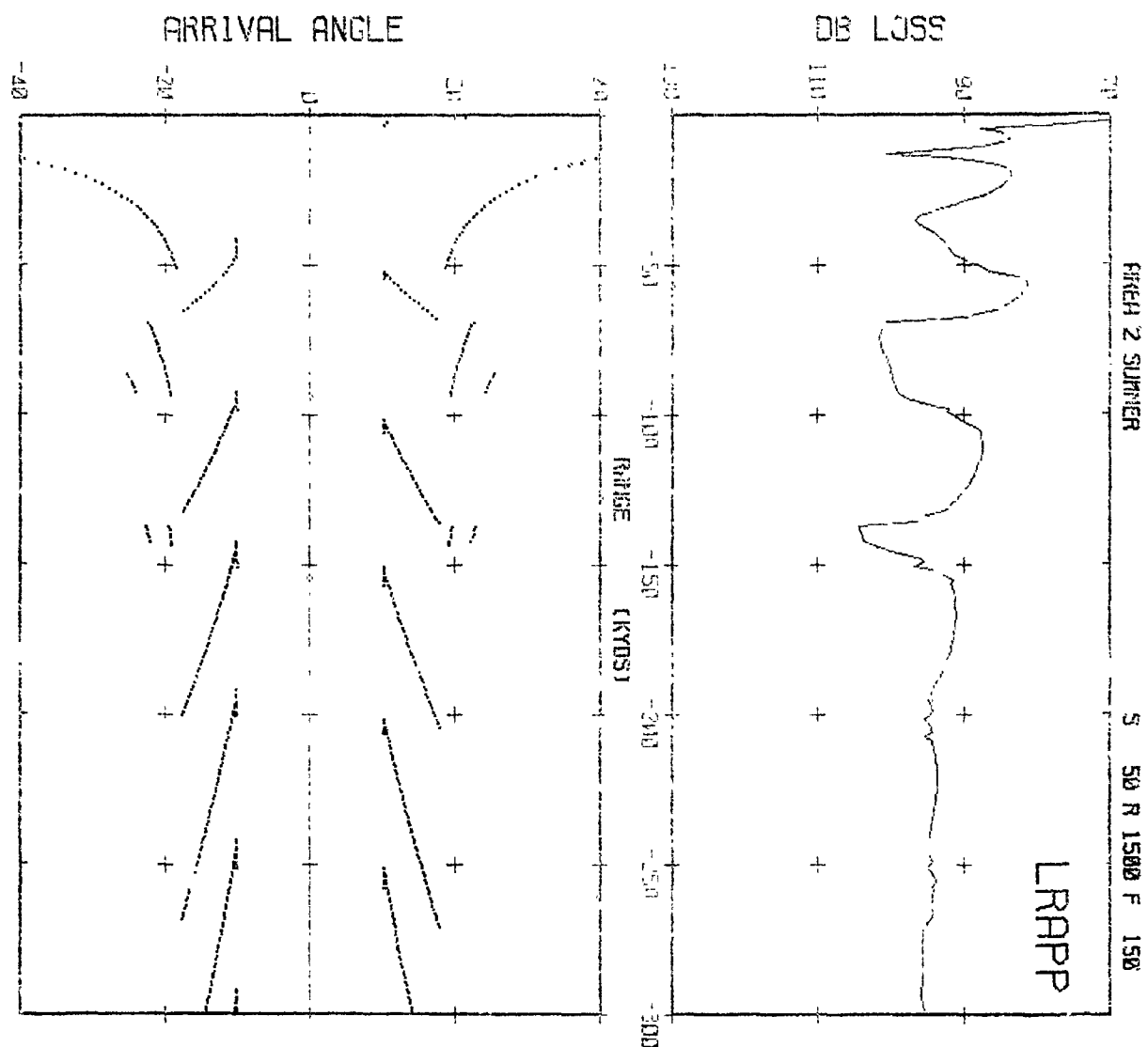


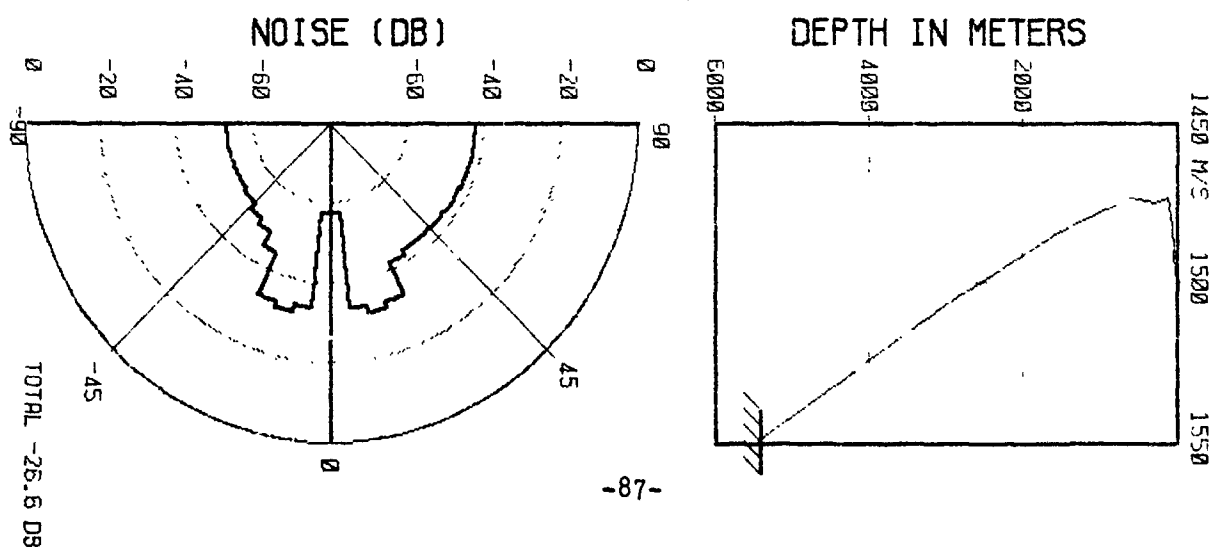
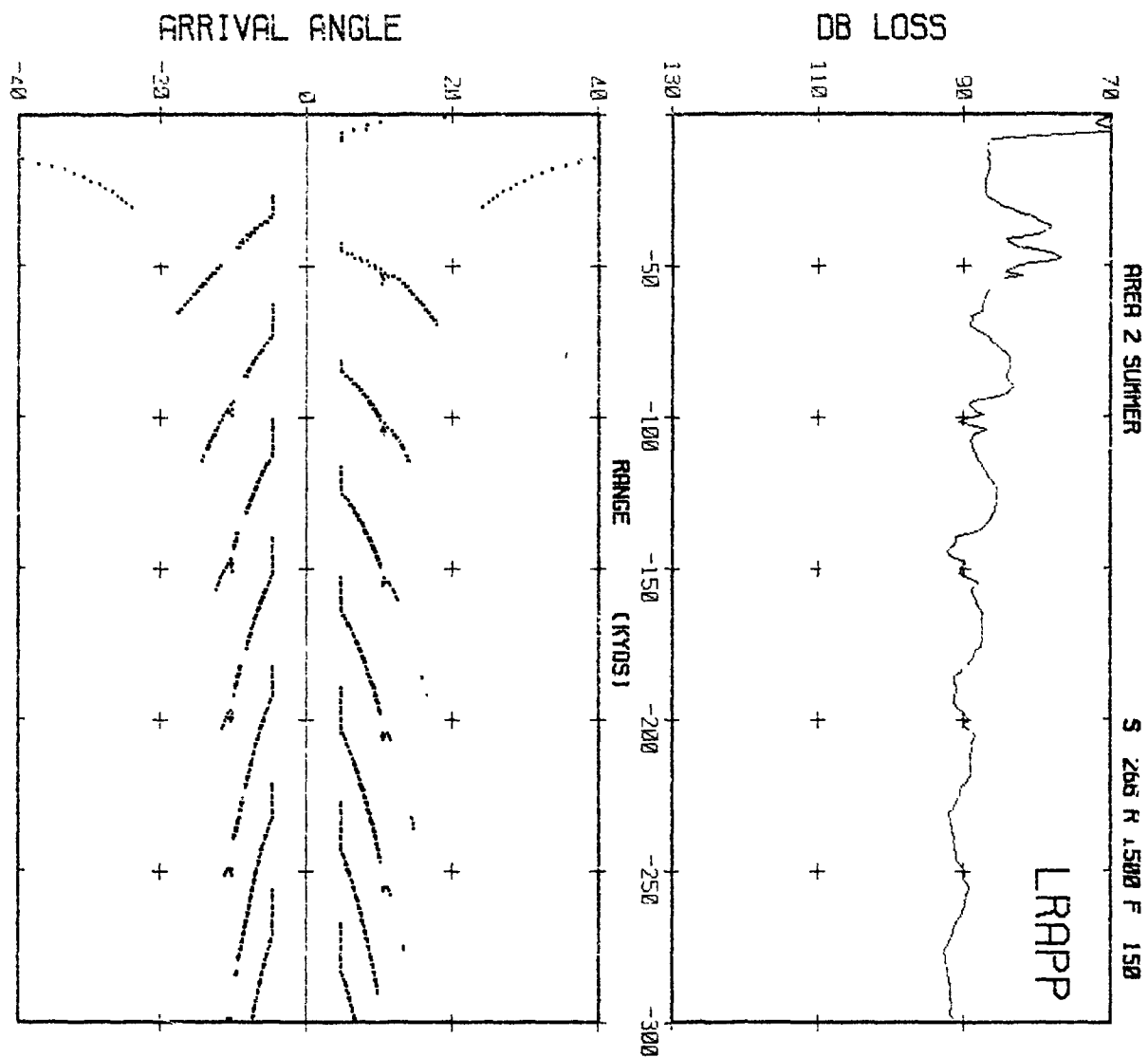
DEPTH IN METERS



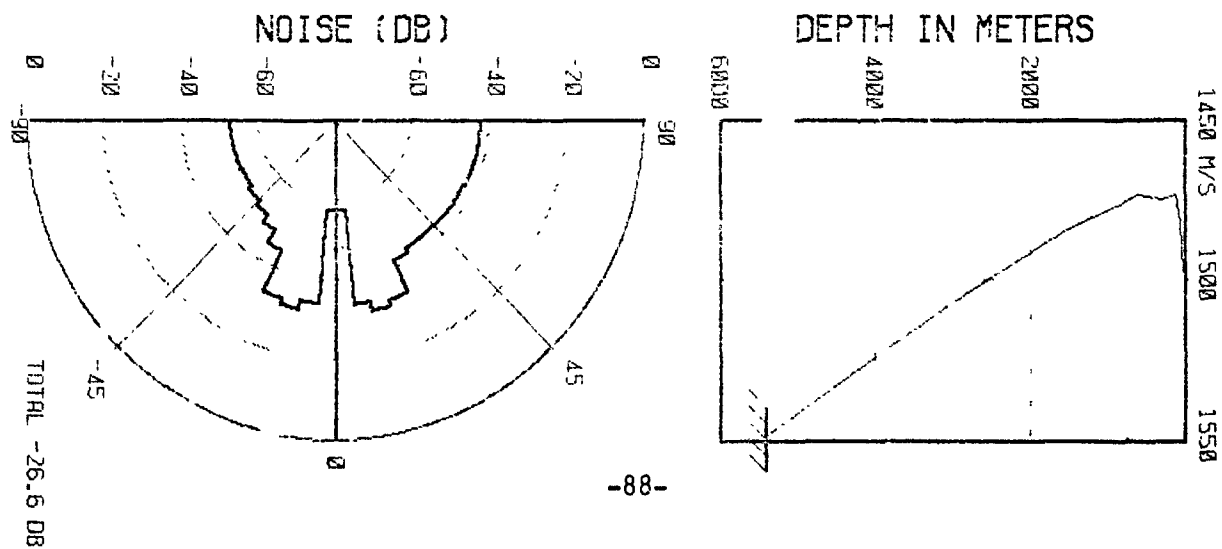
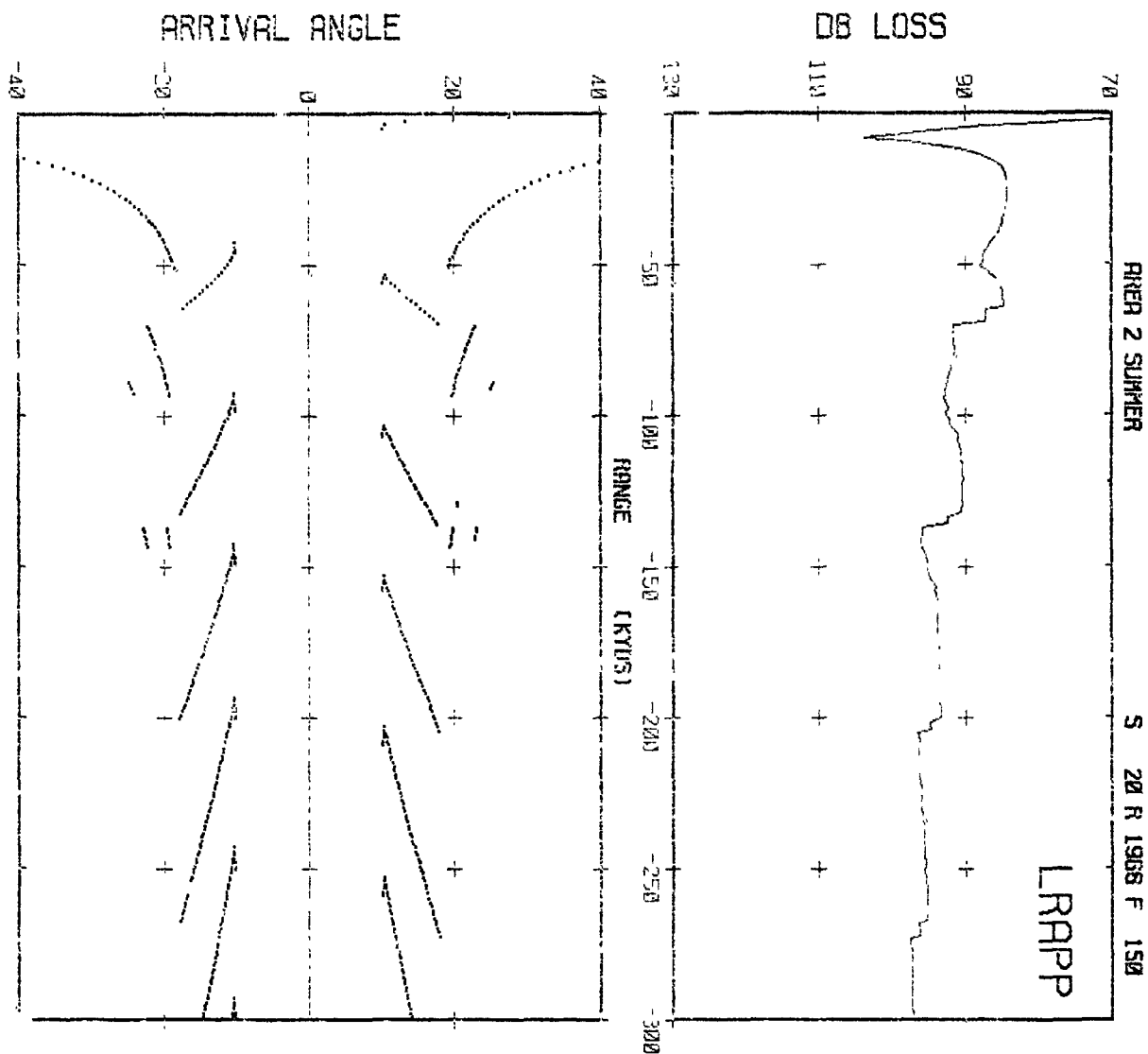
NOISE (DB)









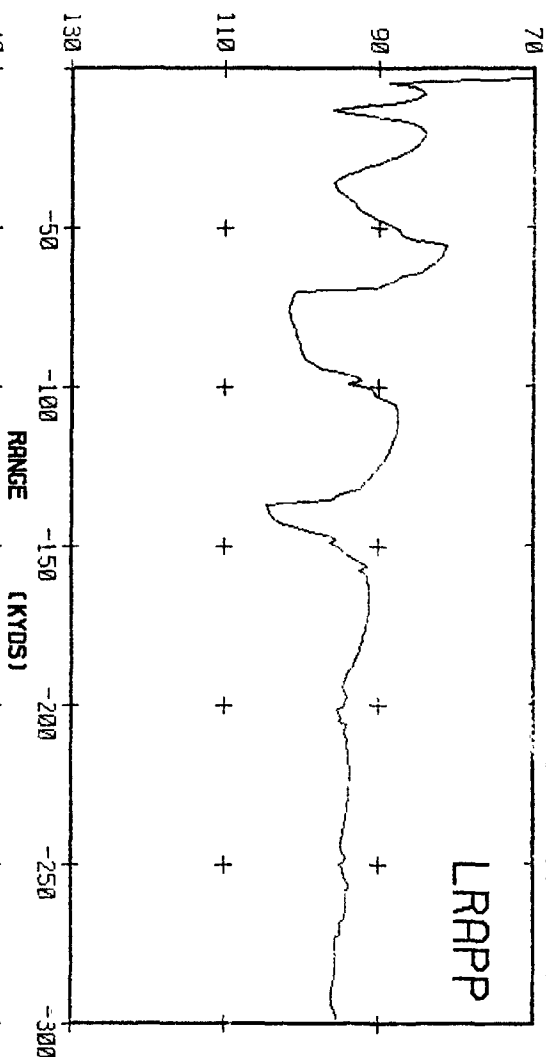


AREA 2 SUMMER

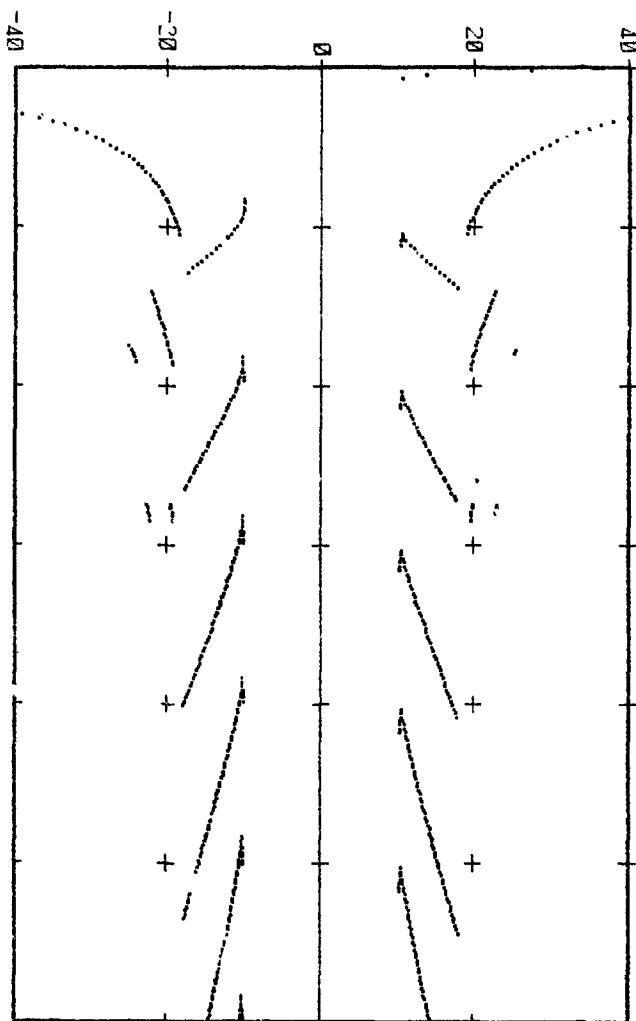
S SR 8 1968 F 150

LRAPP

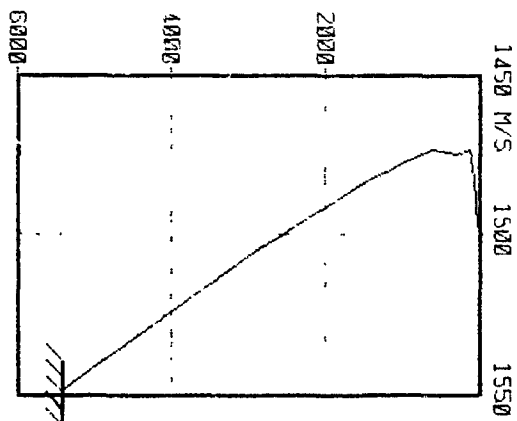
DB LOSS



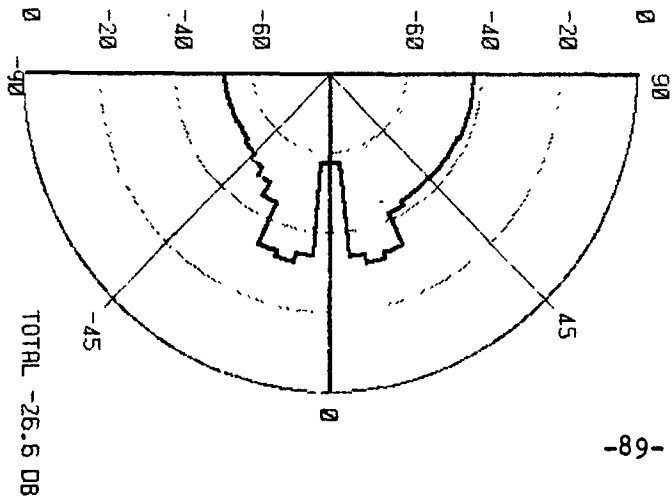
ARRIVAL ANGLE



DEPTH IN METERS



NOISE (DB)



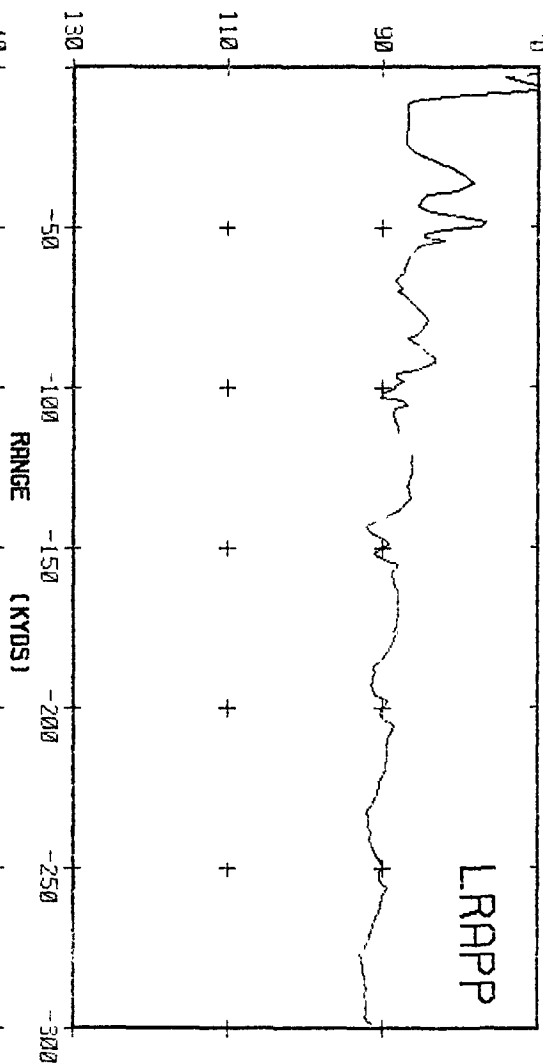
-69-

AREA 2 SUMMER

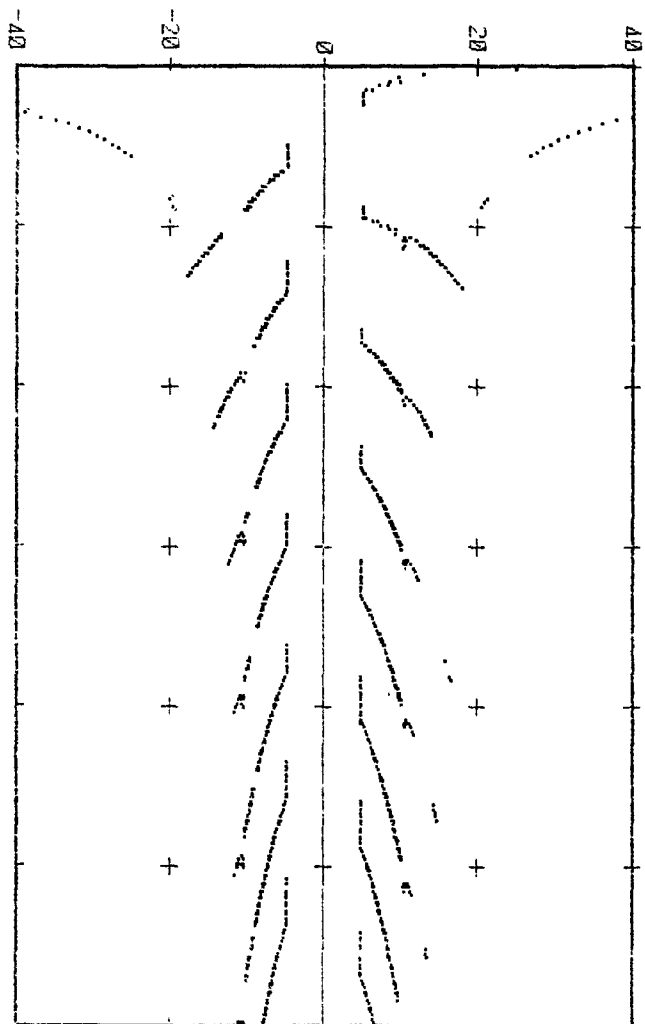
S 266 R 1980 F 150

LRAPP

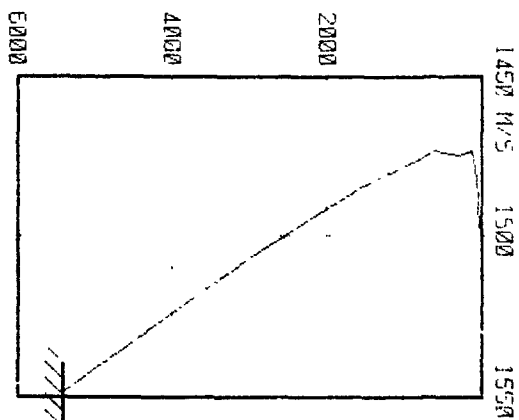
DB LOSS



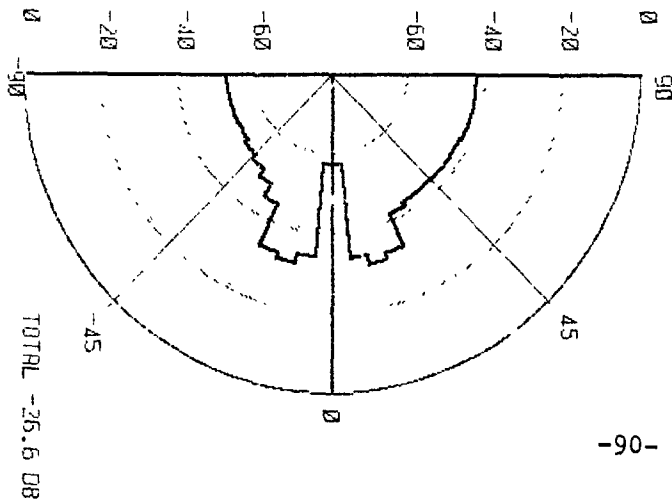
ARRIVAL ANGLE



DEPTH IN METERS



NOISE (DB)

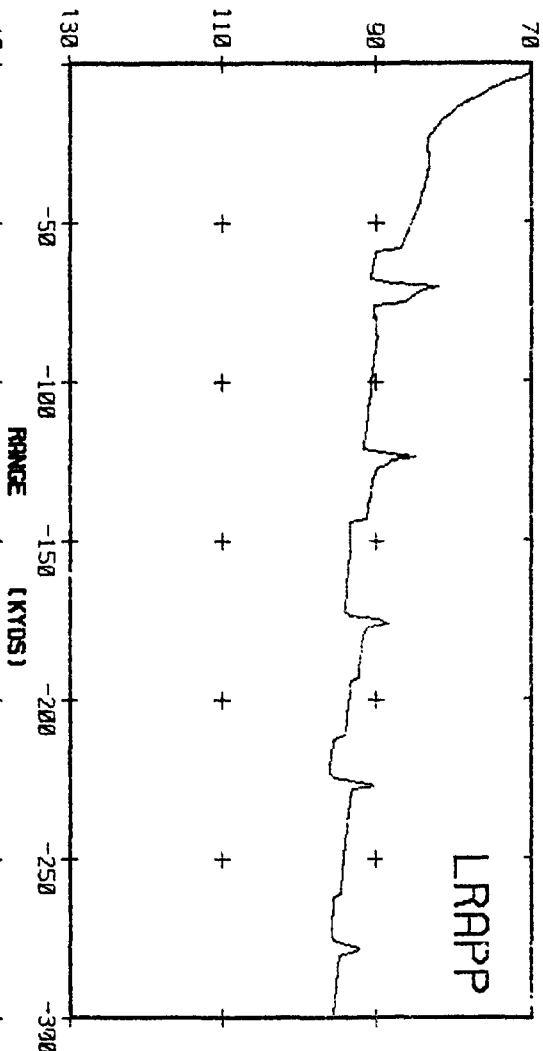


TOTAL -26.6 DB

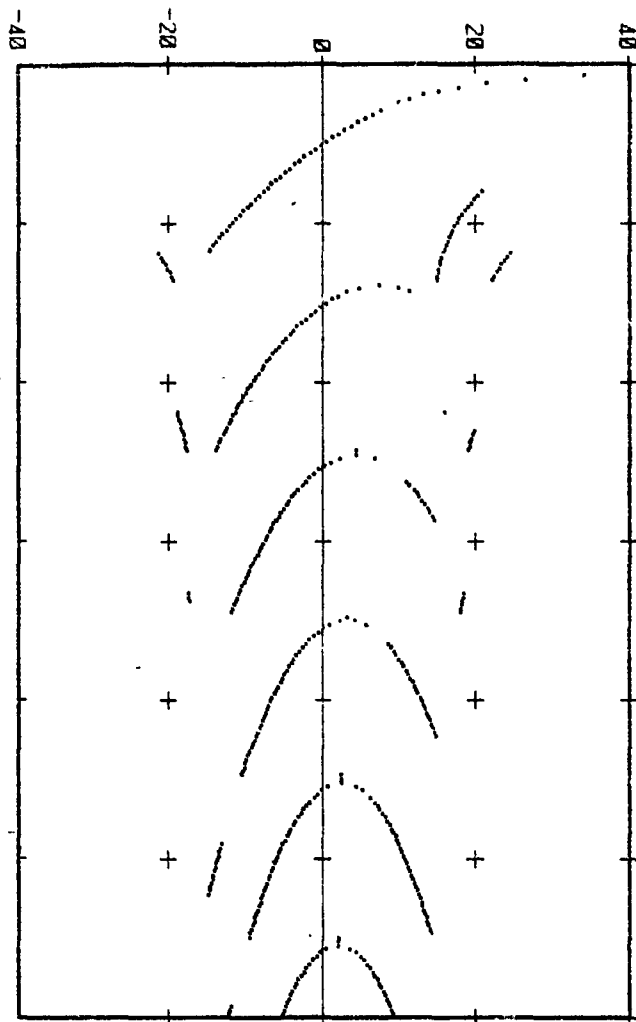
AREA 2 SUMMER

S 20 R 7874 F 150

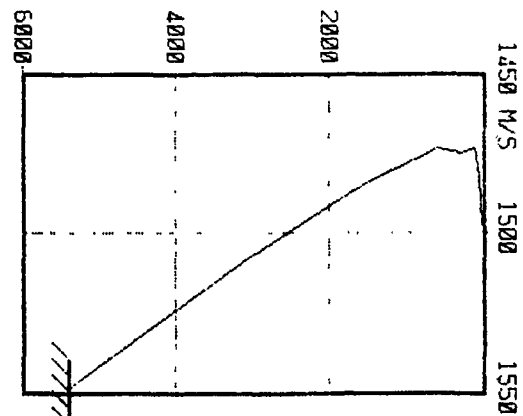
DB LOSS



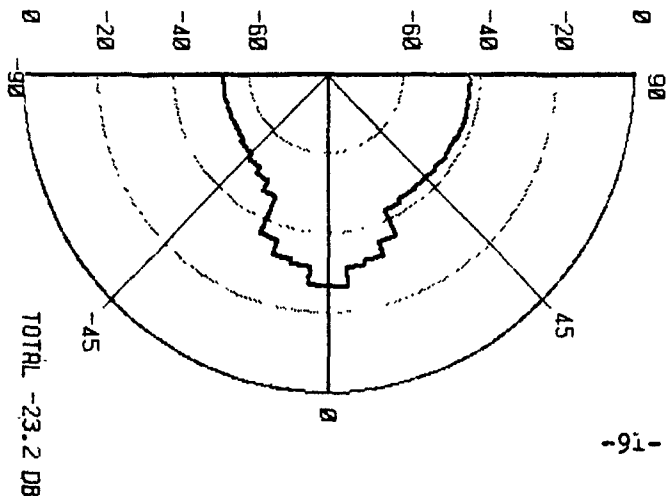
ARRIVAL ANGLE

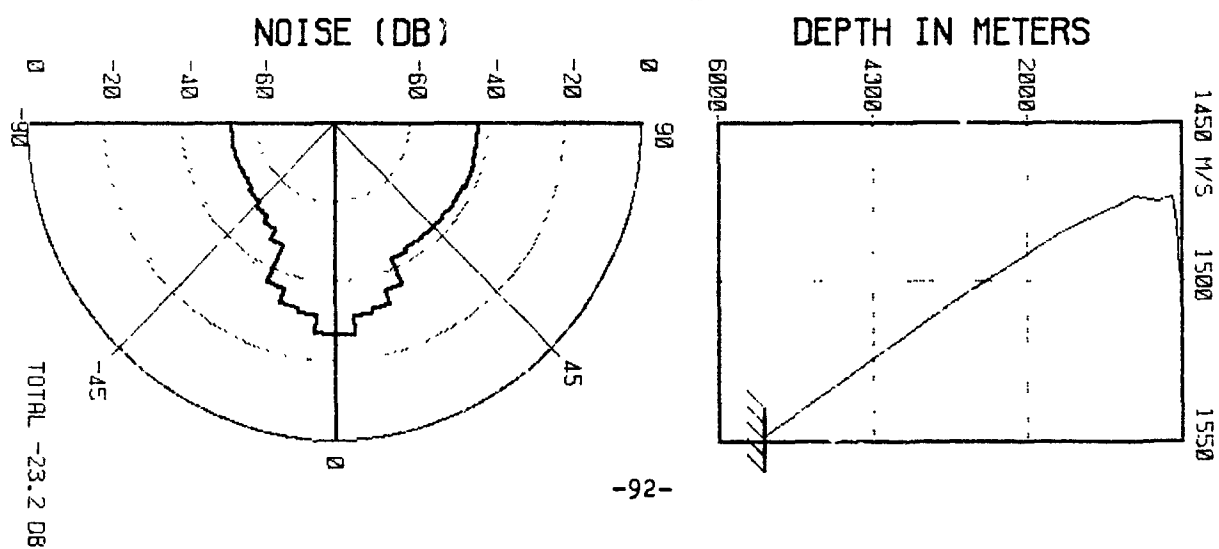
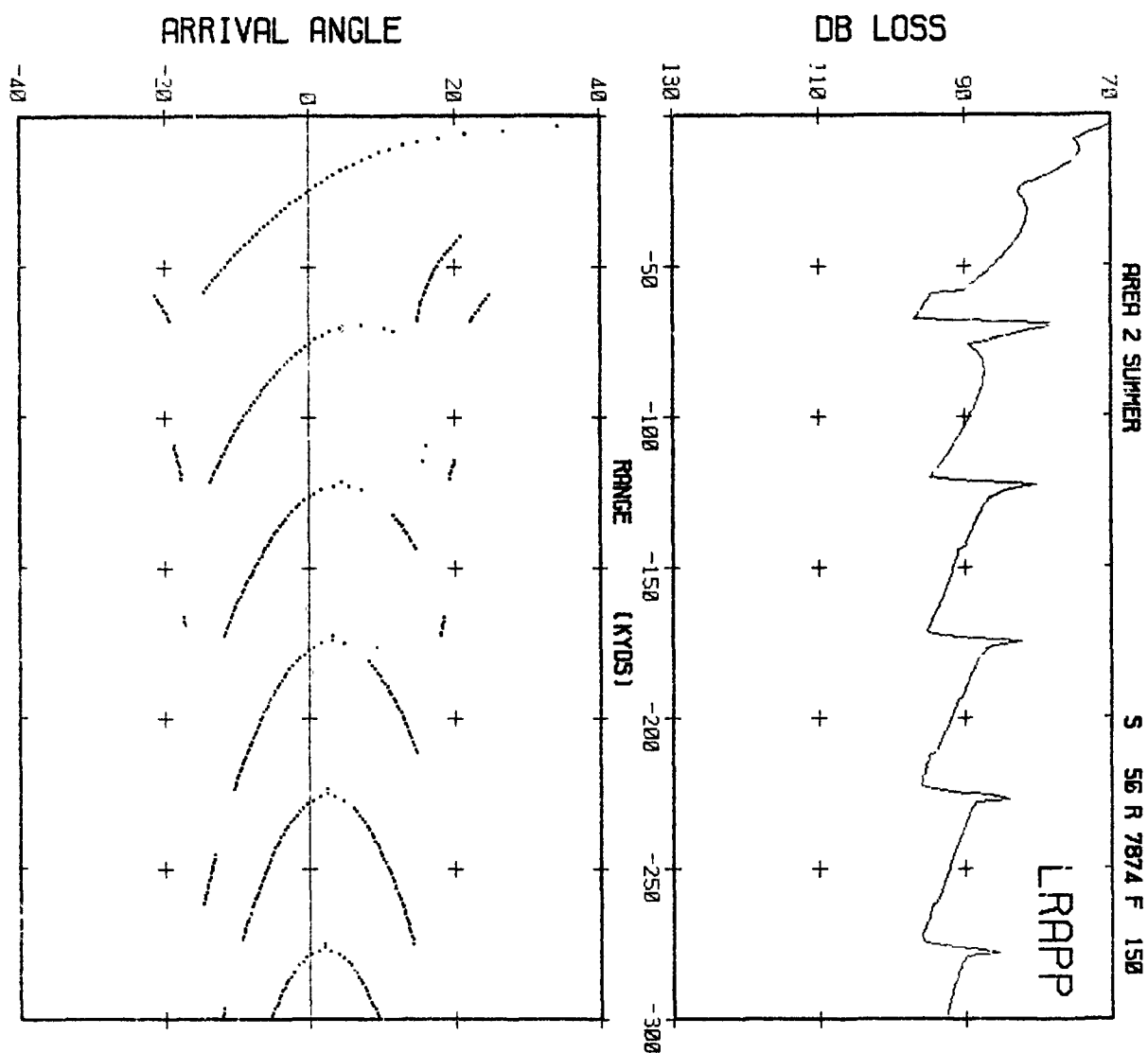


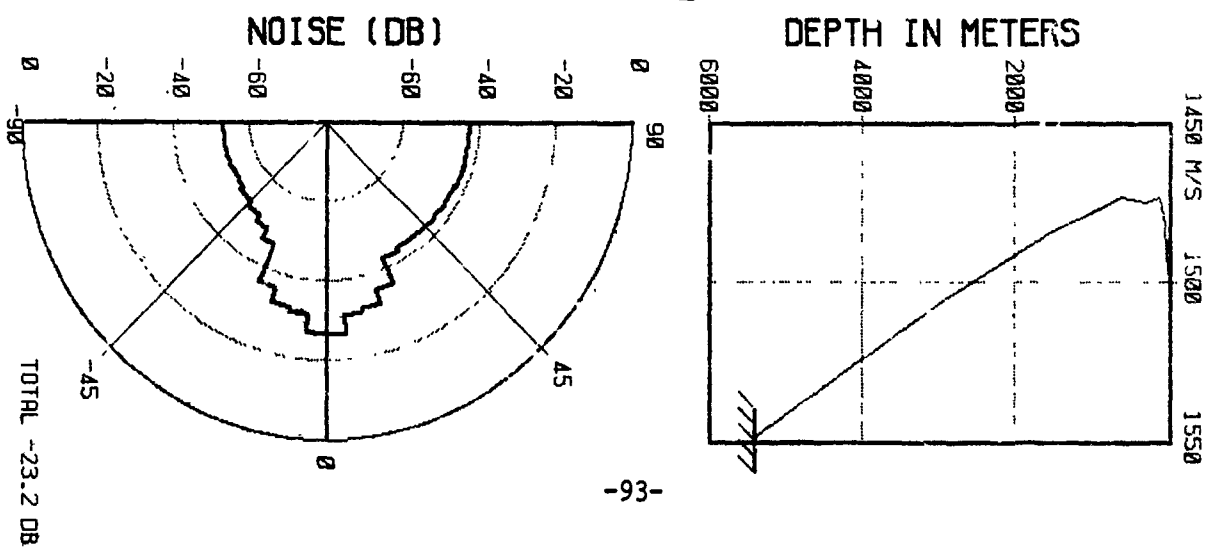
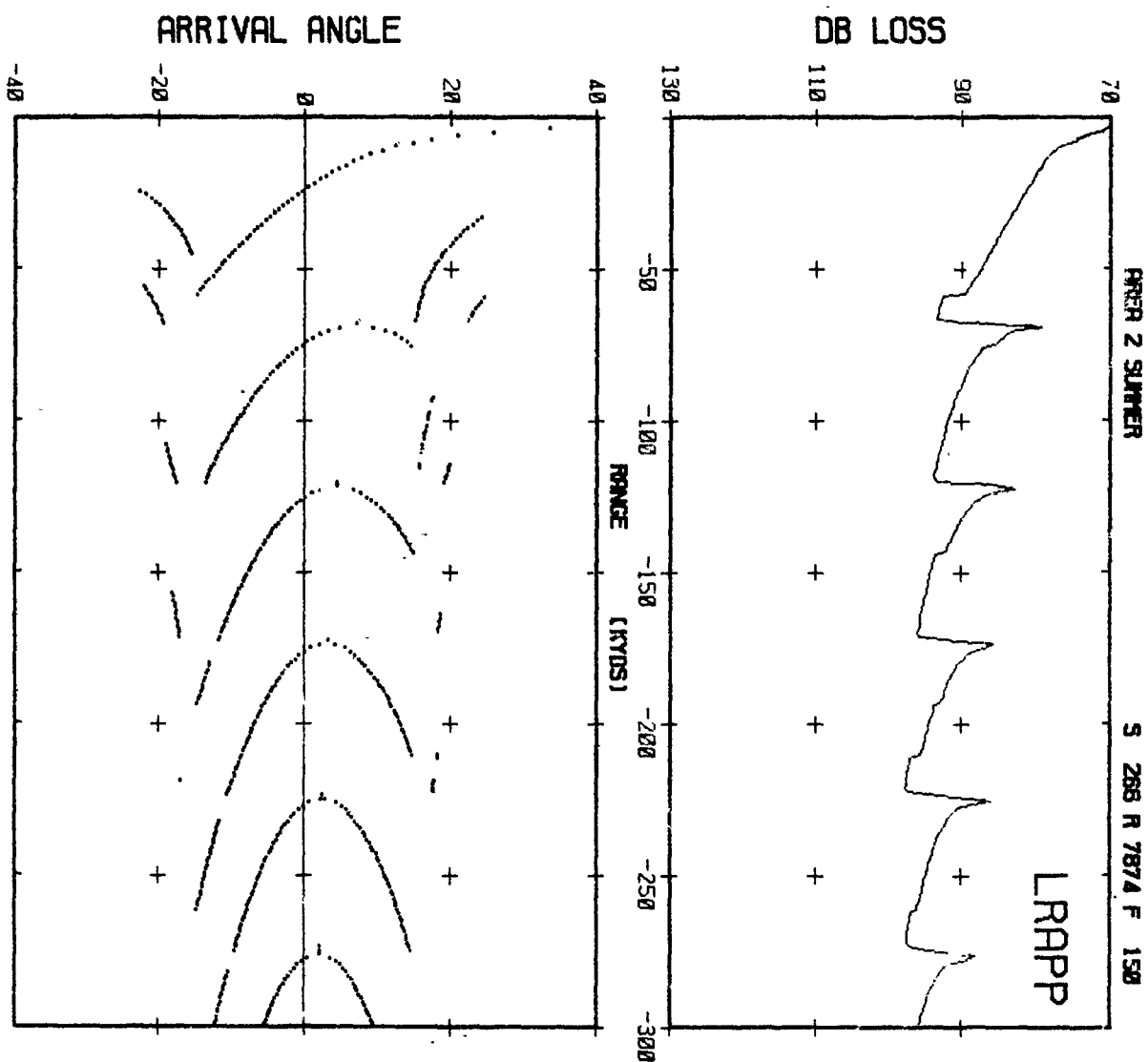
DEPTH IN METERS

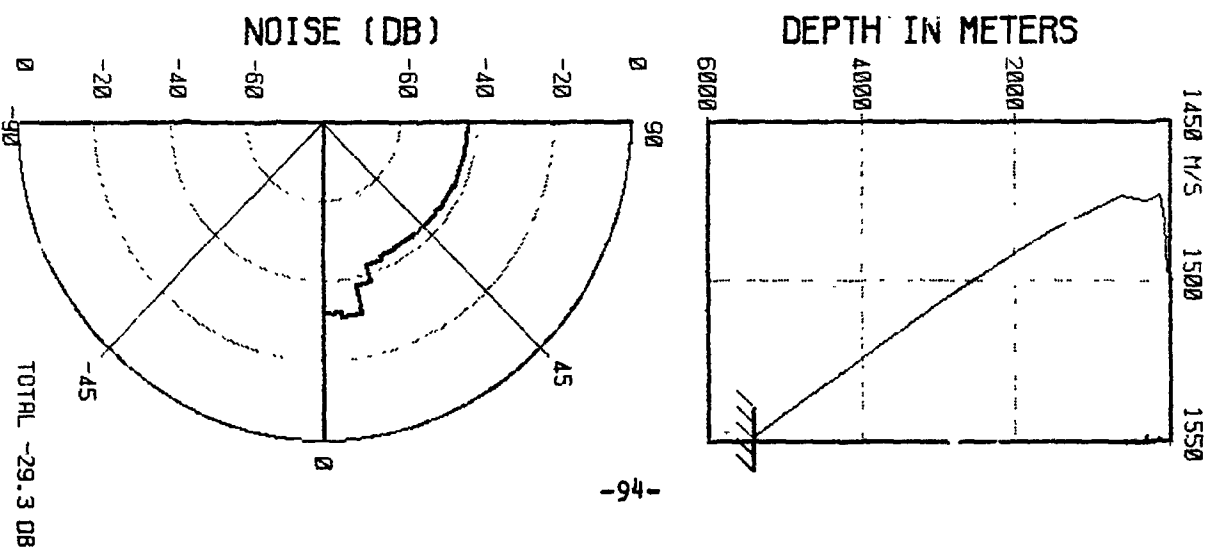
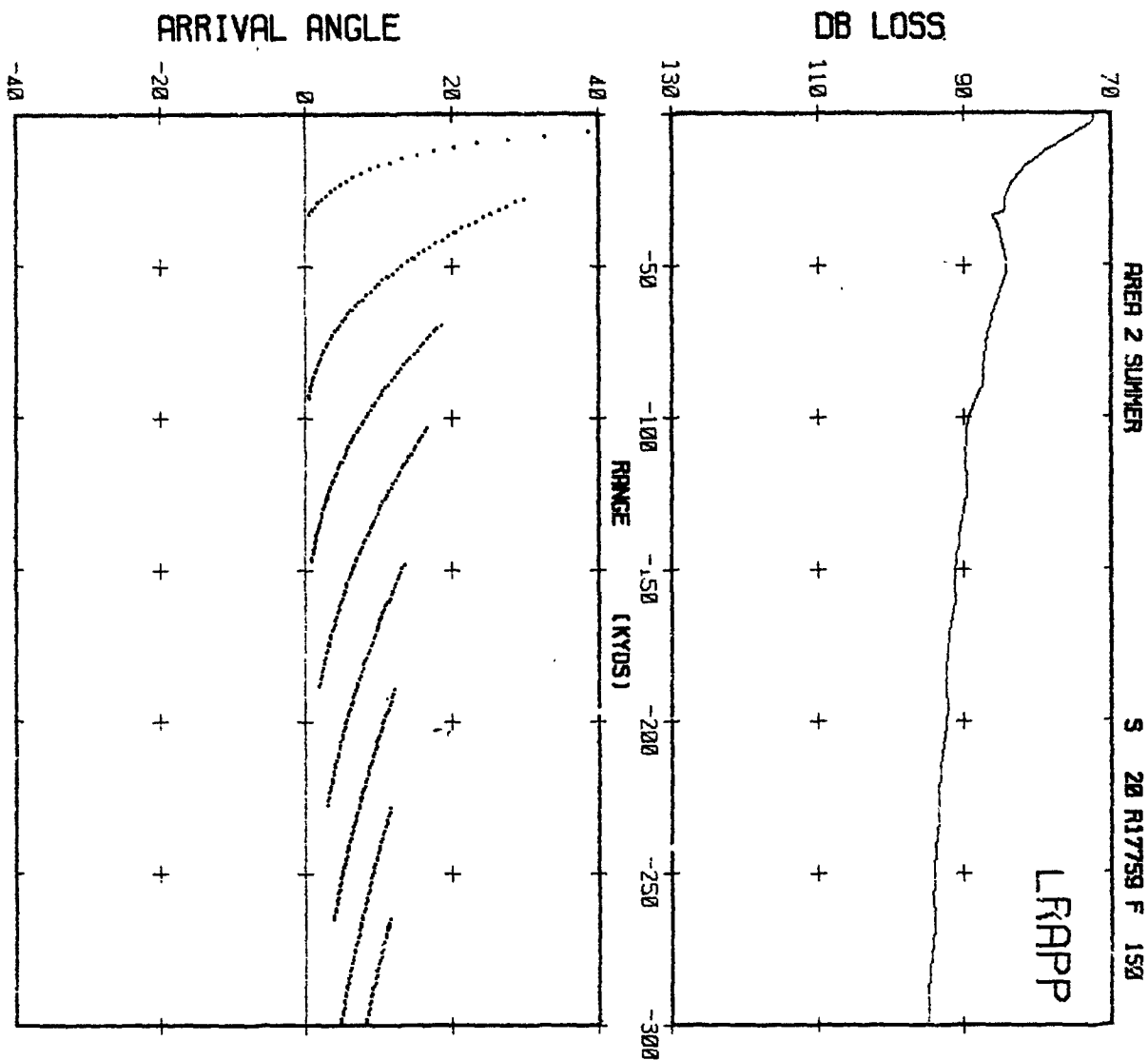


NOISE (DB)







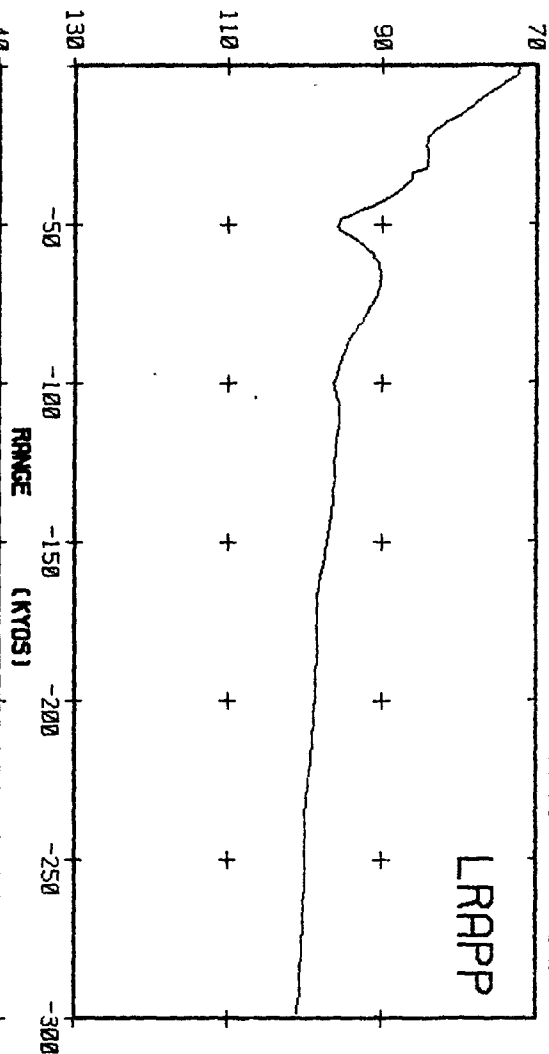


AREA 2 SUMMER

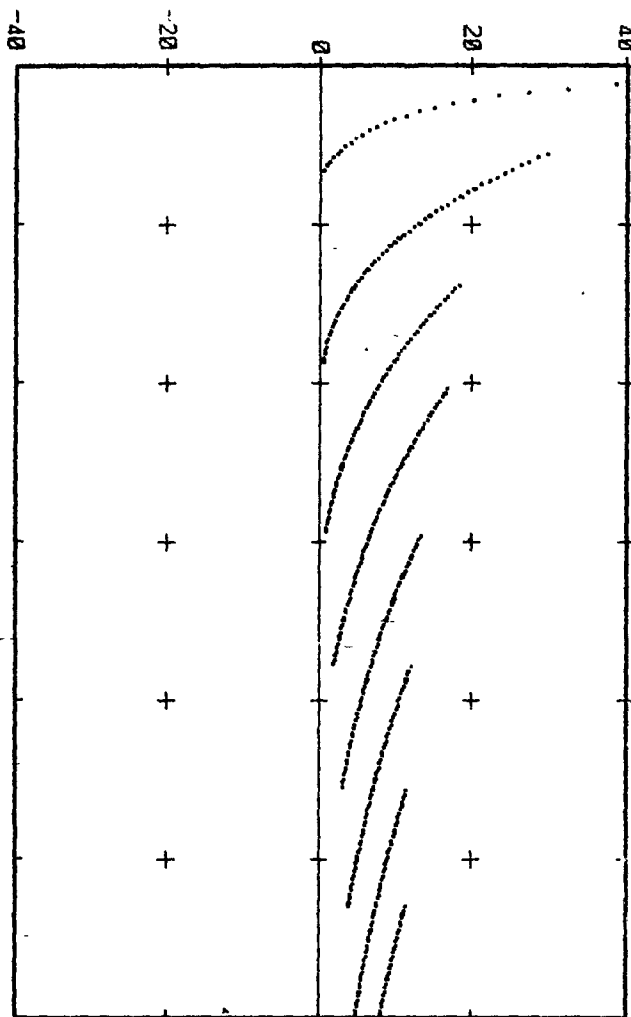
S 50 R17759 F 150

LRAPP

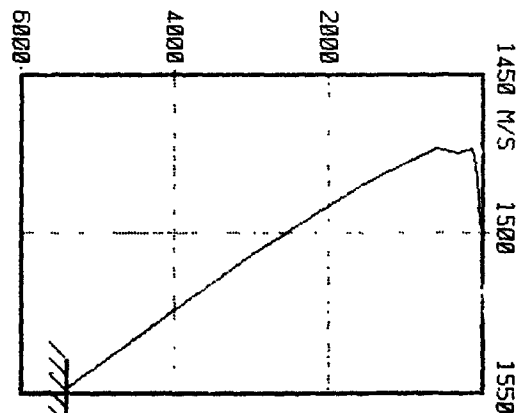
DB LOSS



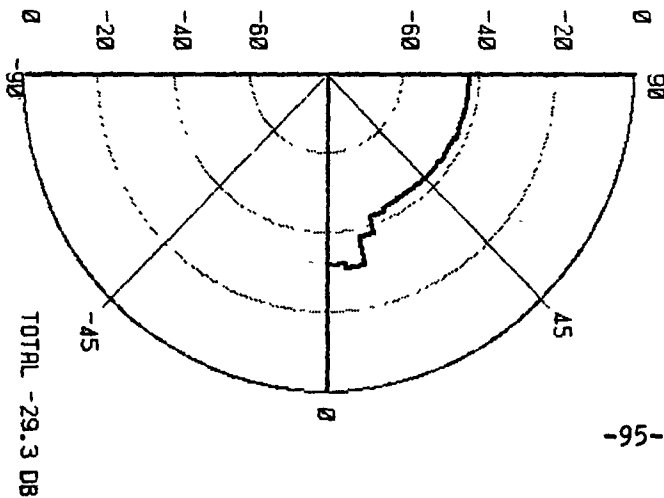
ARRIVAL ANGLE



DEPTH IN METERS



NOISE (DB)



TOTAL -29.3 DB

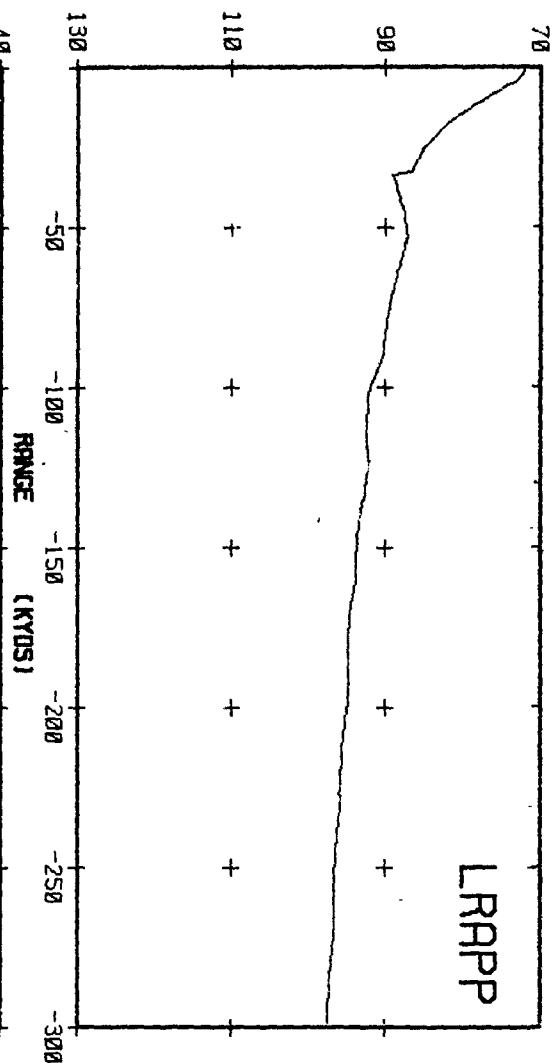


AREA 2 SUMMER

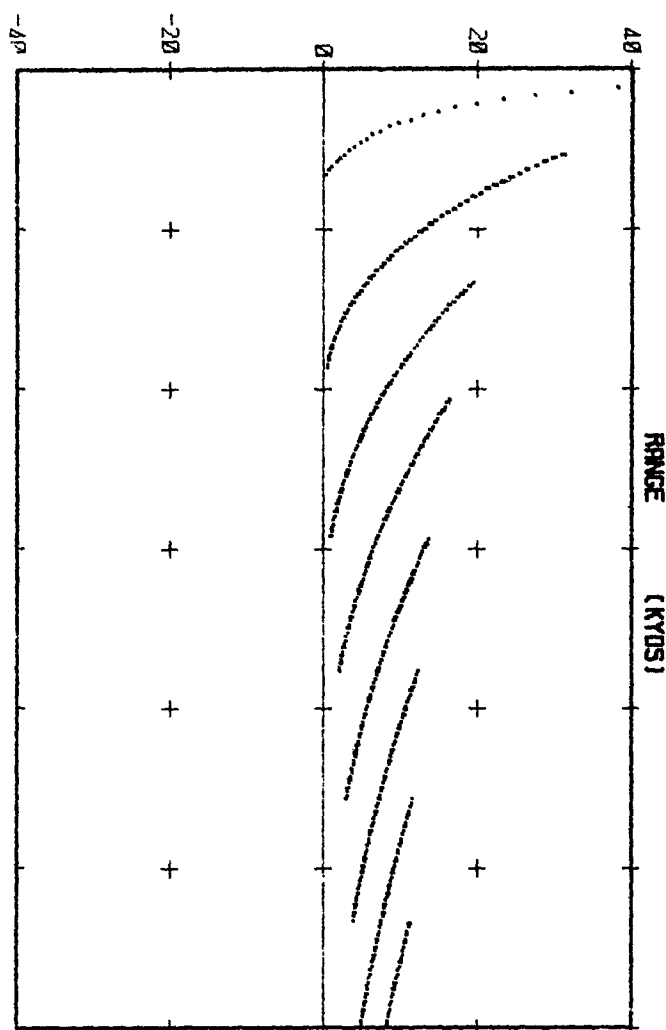
S 268 R17759 F 150

LRAPP

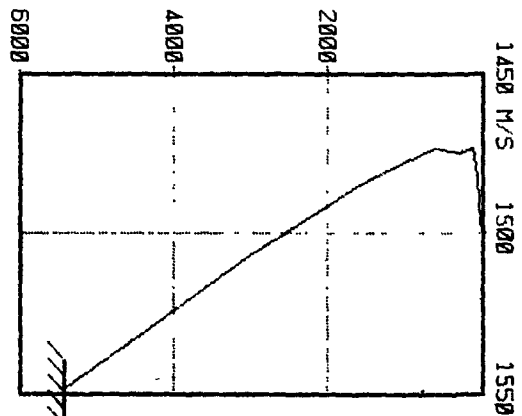
DB LOSS



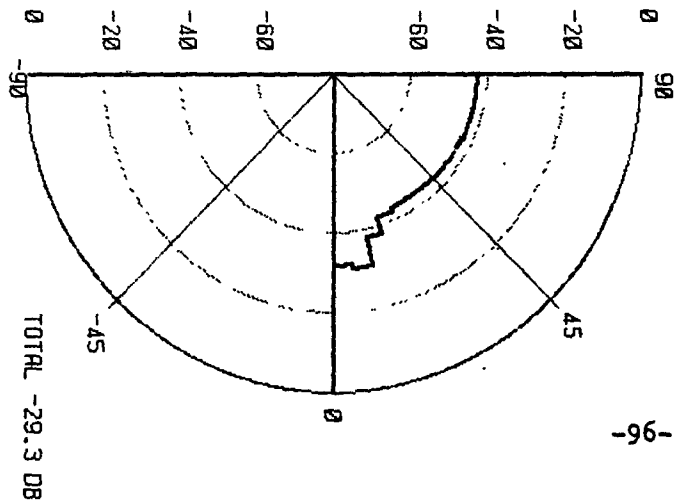
ARRIVAL ANGLE



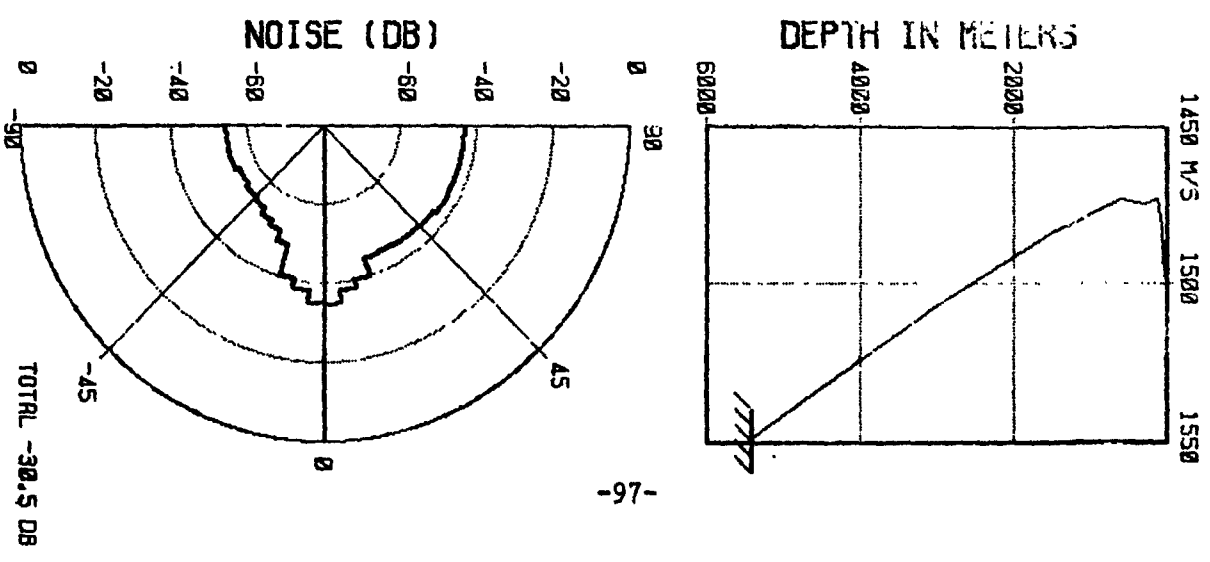
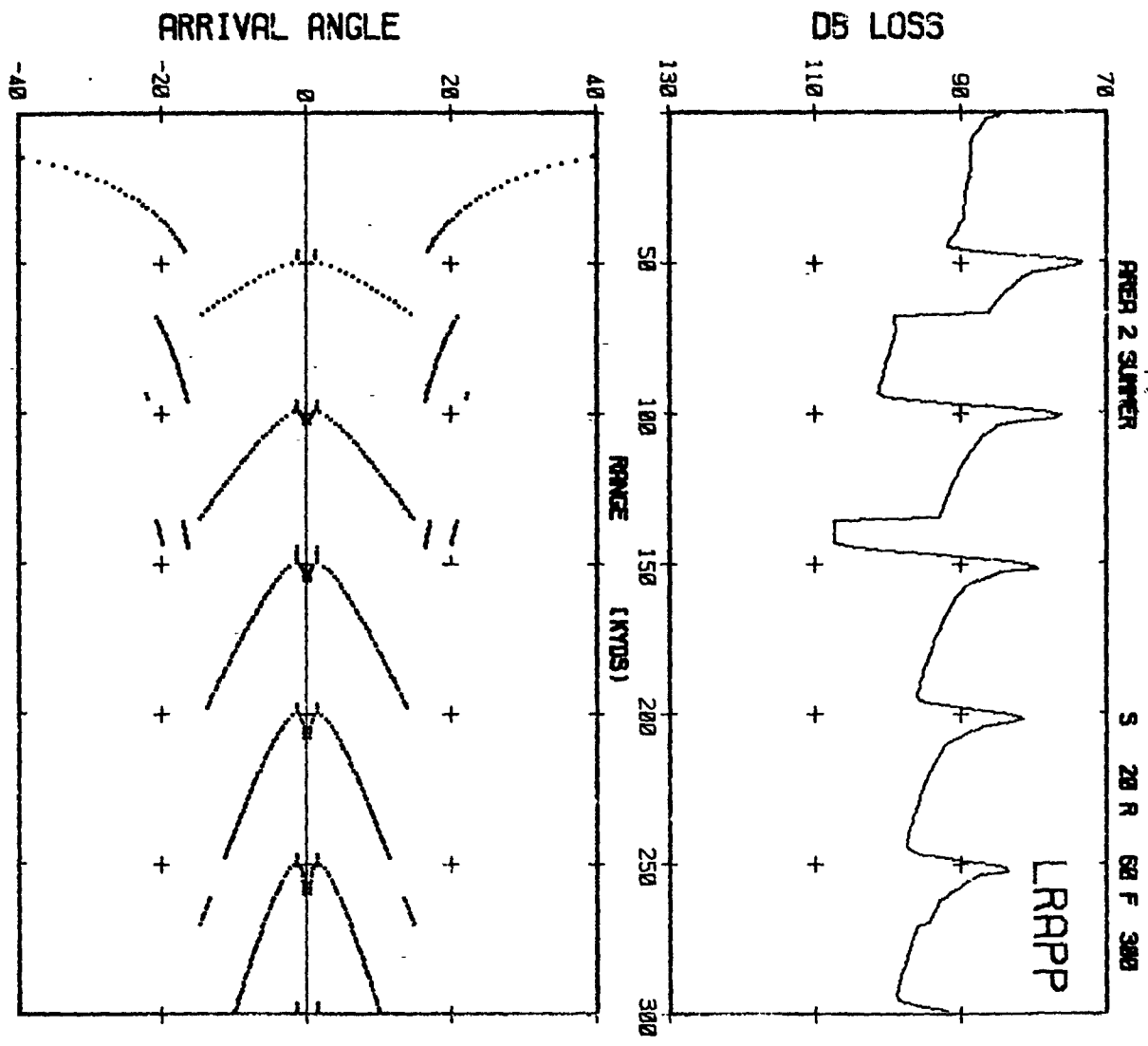
DEPTH IN METERS



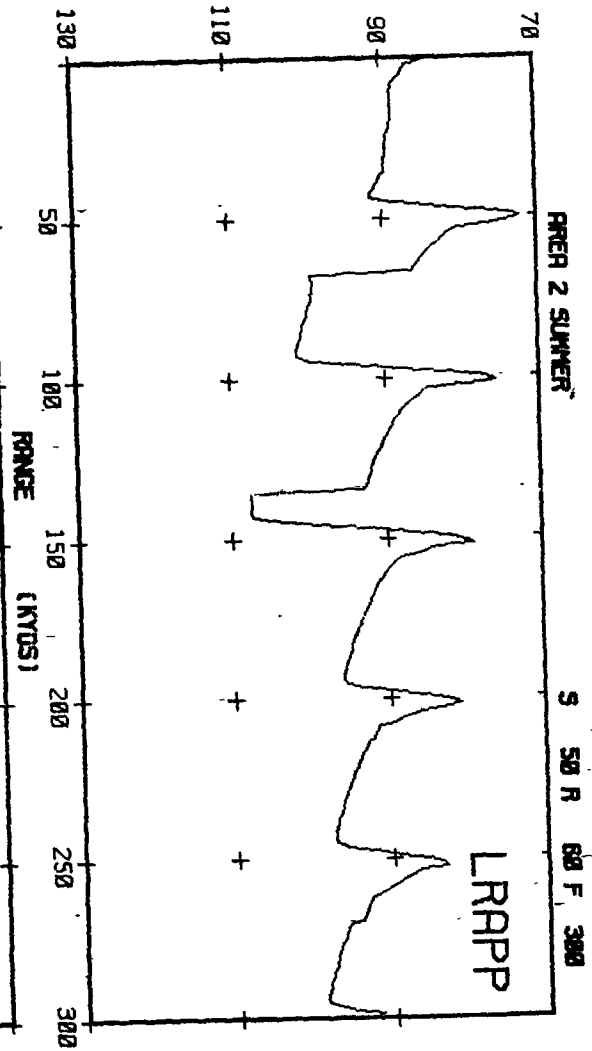
NOISE (DB)



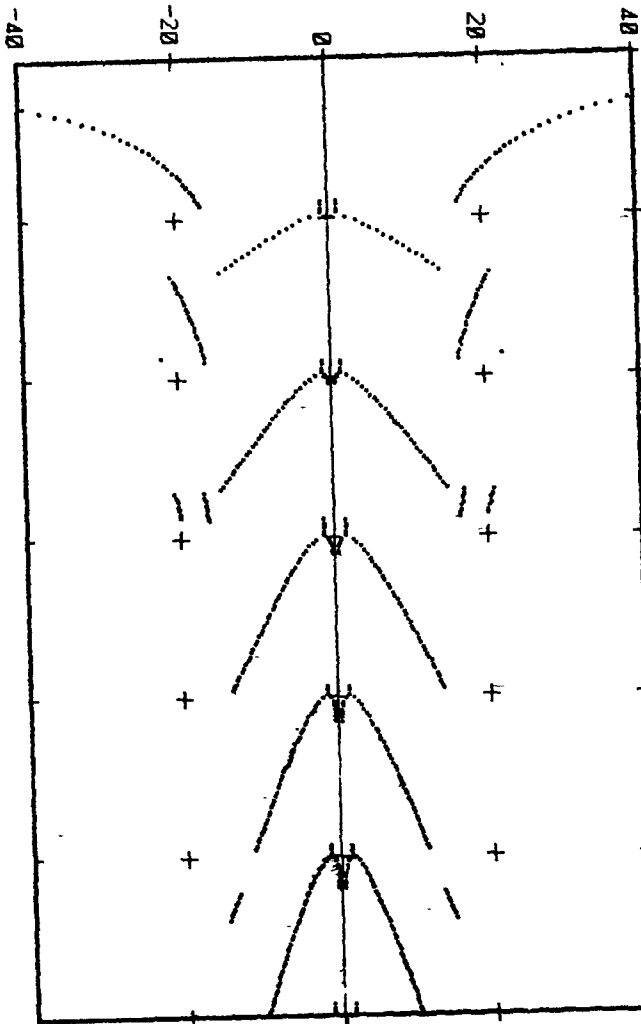
TOTAL -29.3 DB



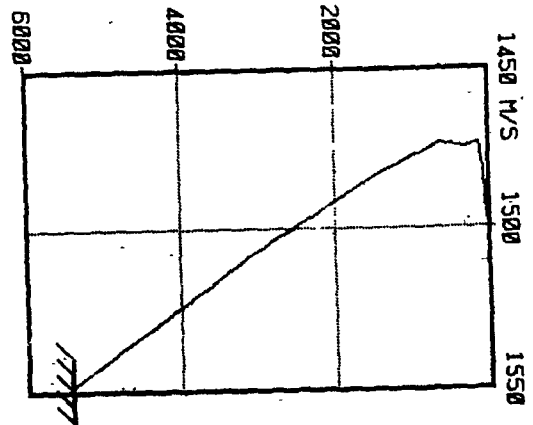
# DB LOSS



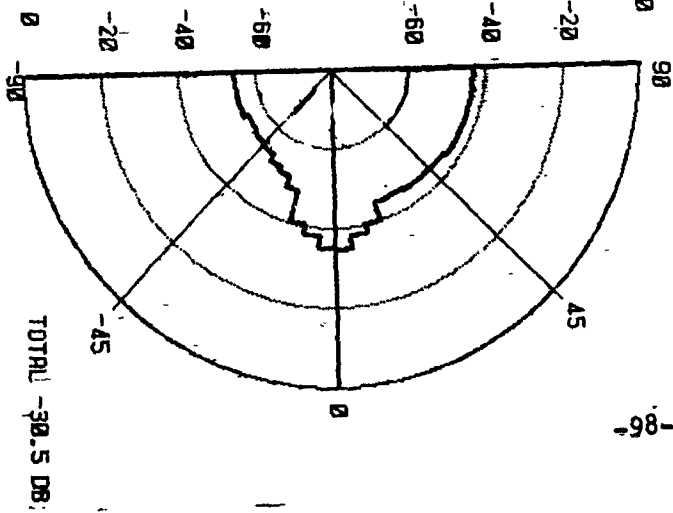
# ARRIVAL ANGLE



# DEPTH IN METERS



# NOISE (DB)

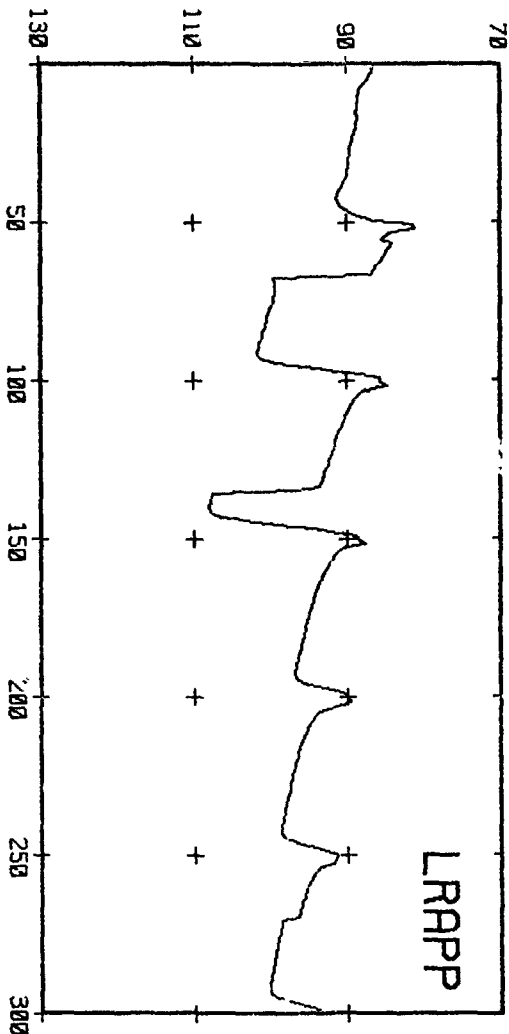


PRER 2 SUMMER

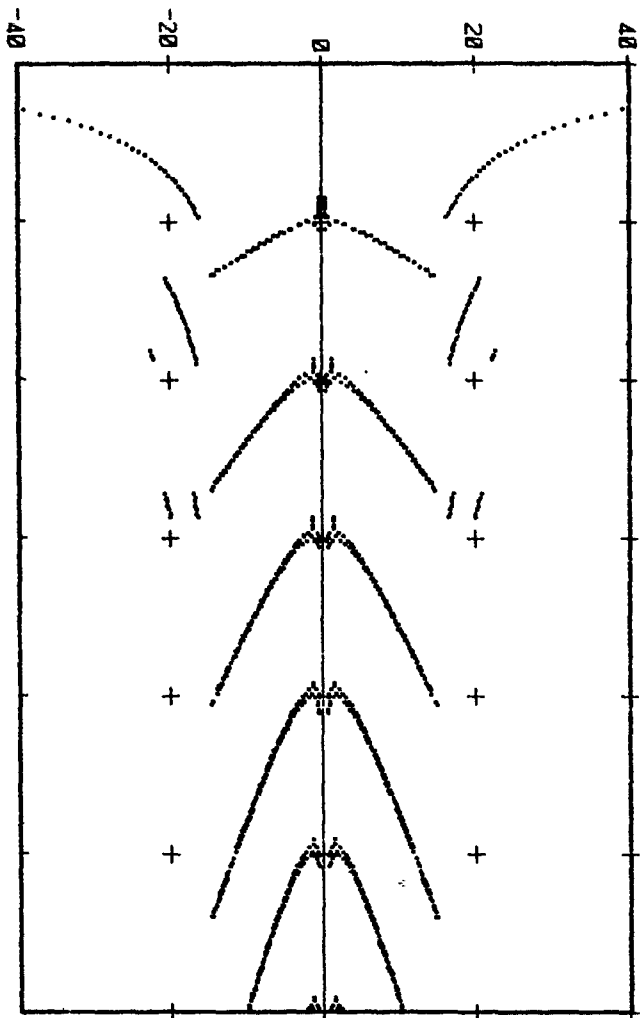
S 266 R 60 F 300

LRAPP

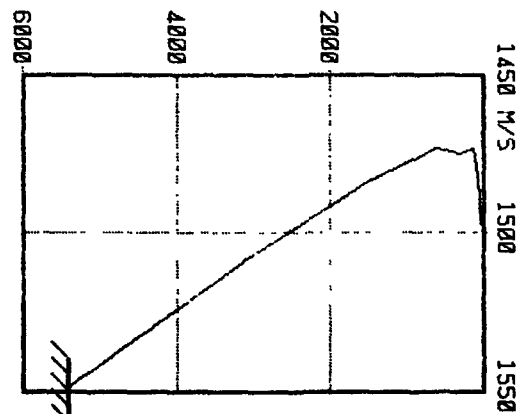
DB LOSS



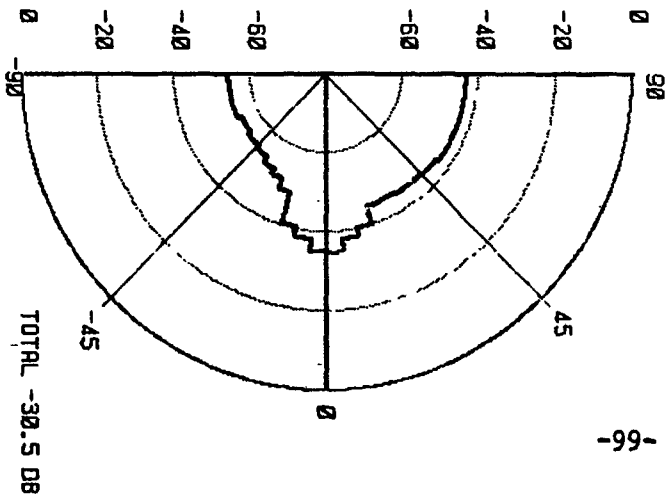
ARRIVAL ANGLE



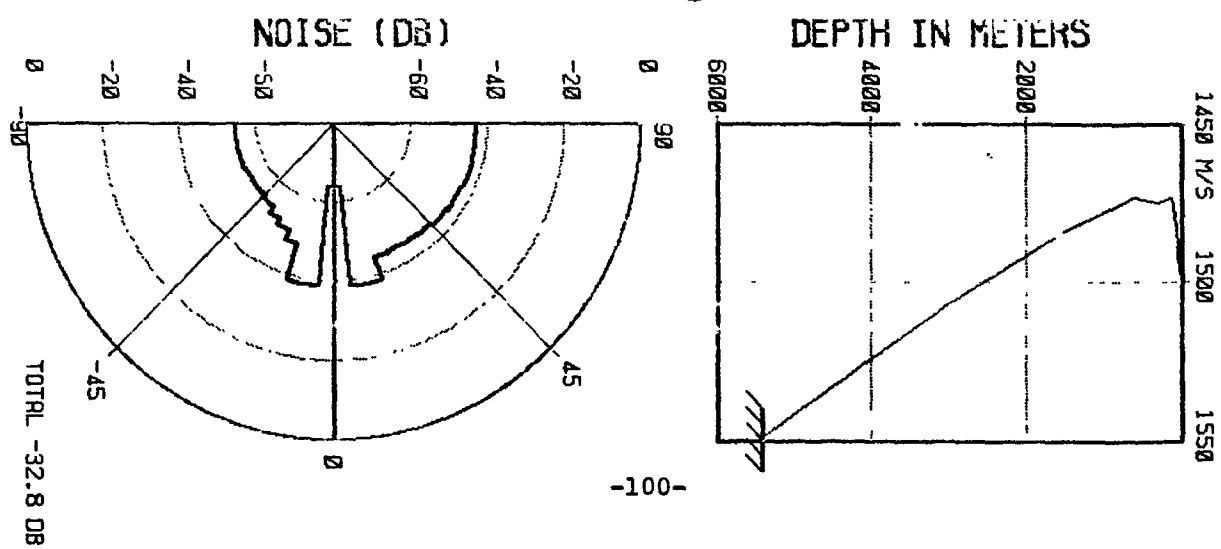
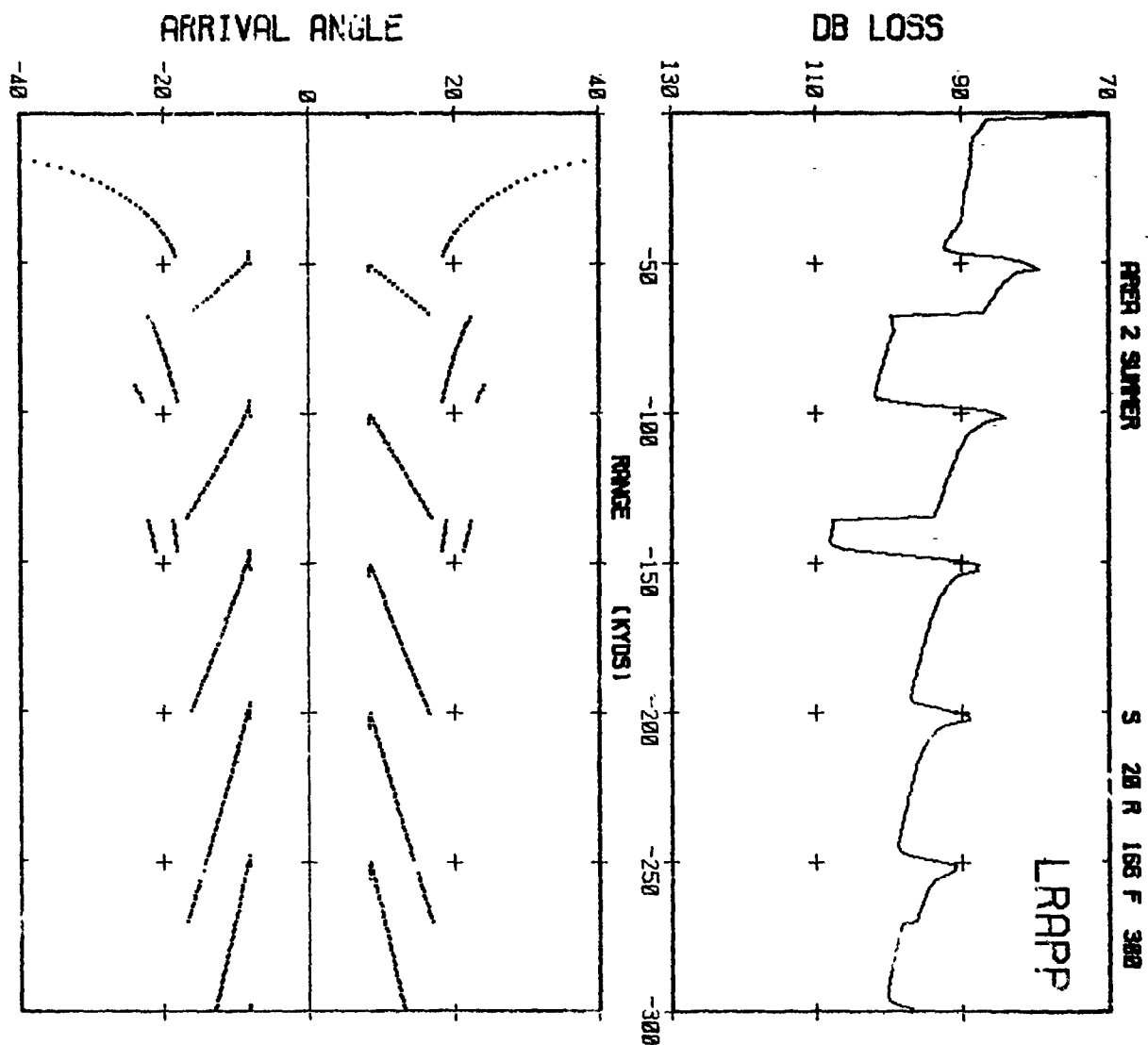
DEPTH IN METERS



NOISE (DB)



-99-

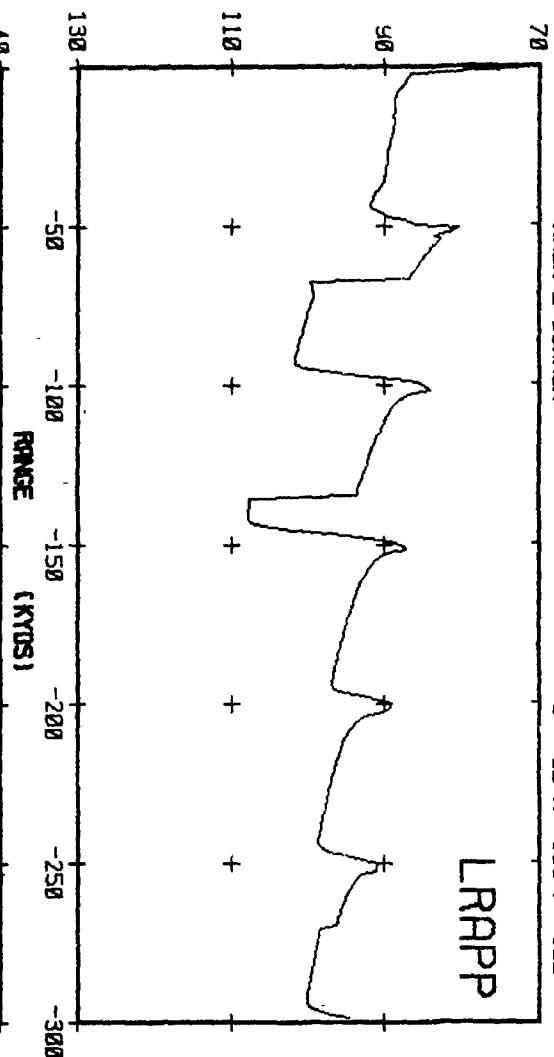


AREA 2 SUMMER

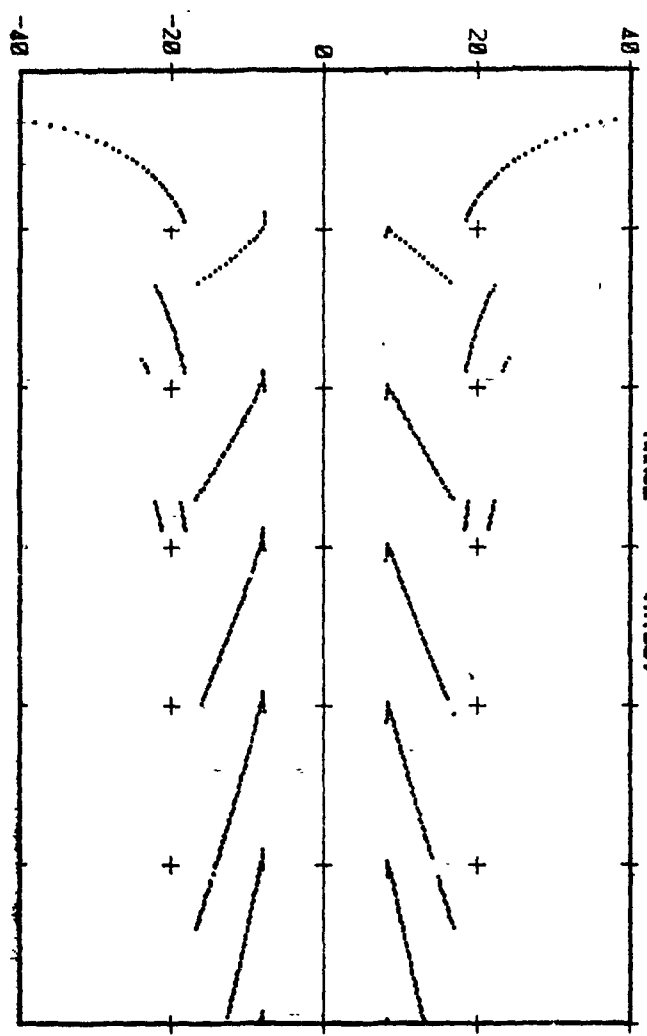
S 50 R 166 F 300

LRAPP

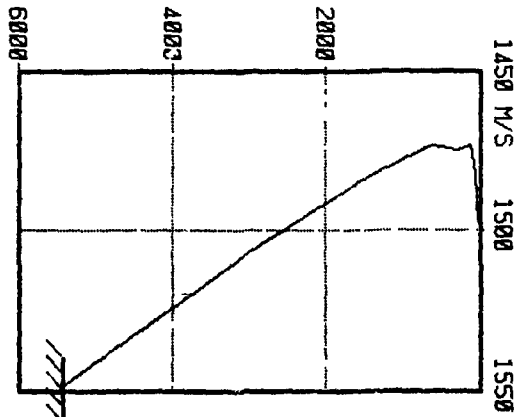
DB LOSS



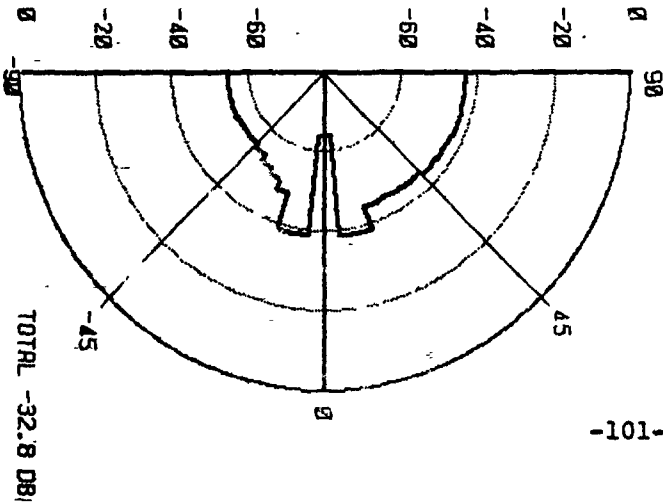
ARRIVAL ANGLE

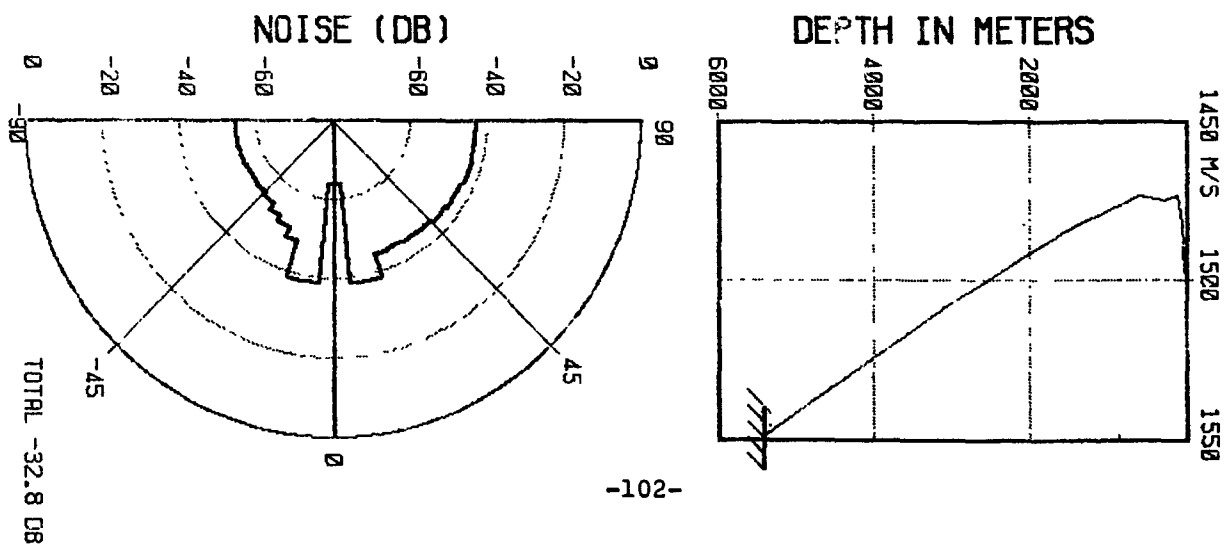
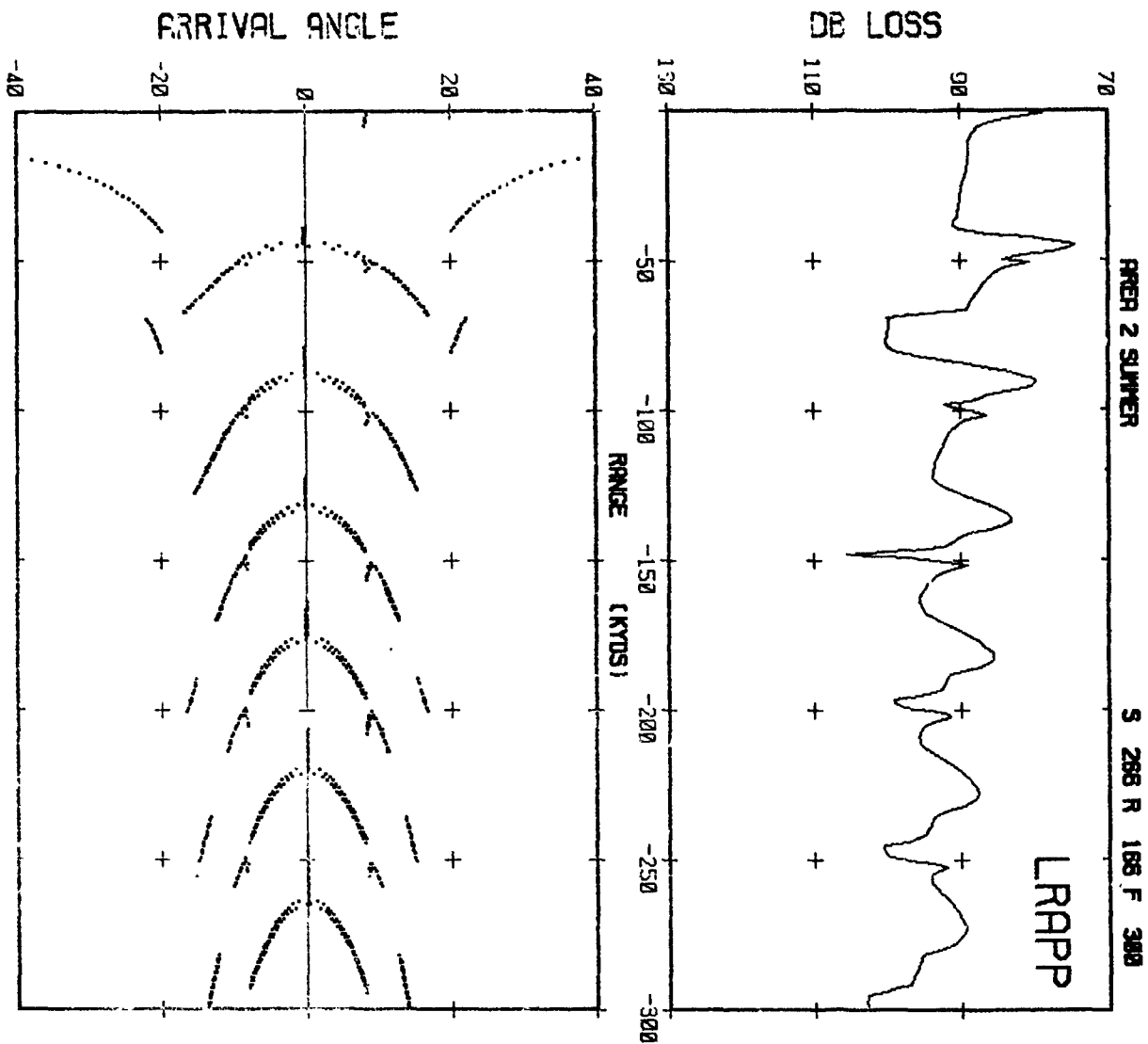


DEPTH IN METERS



NOISE (DB)



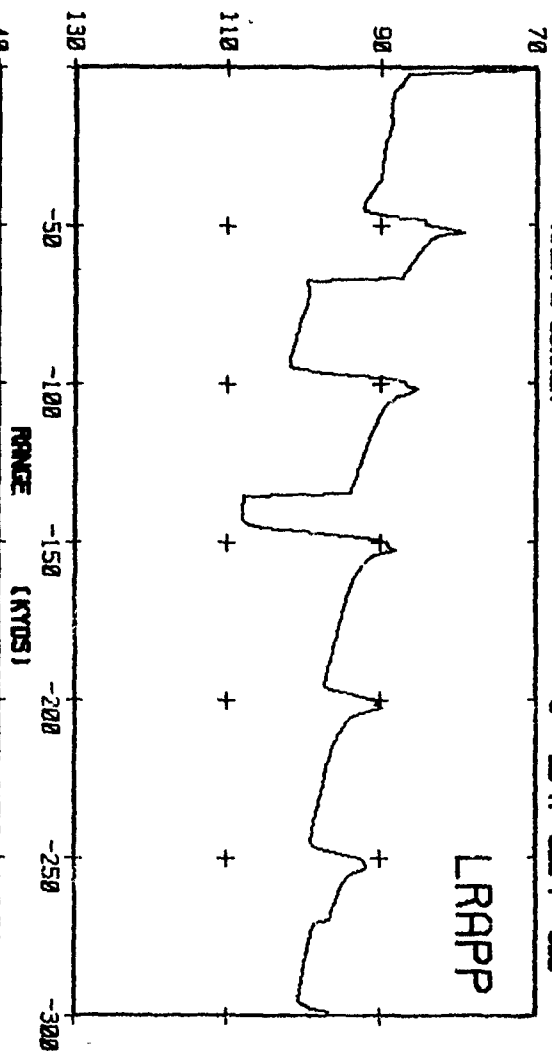


AREA 2 SUMMER

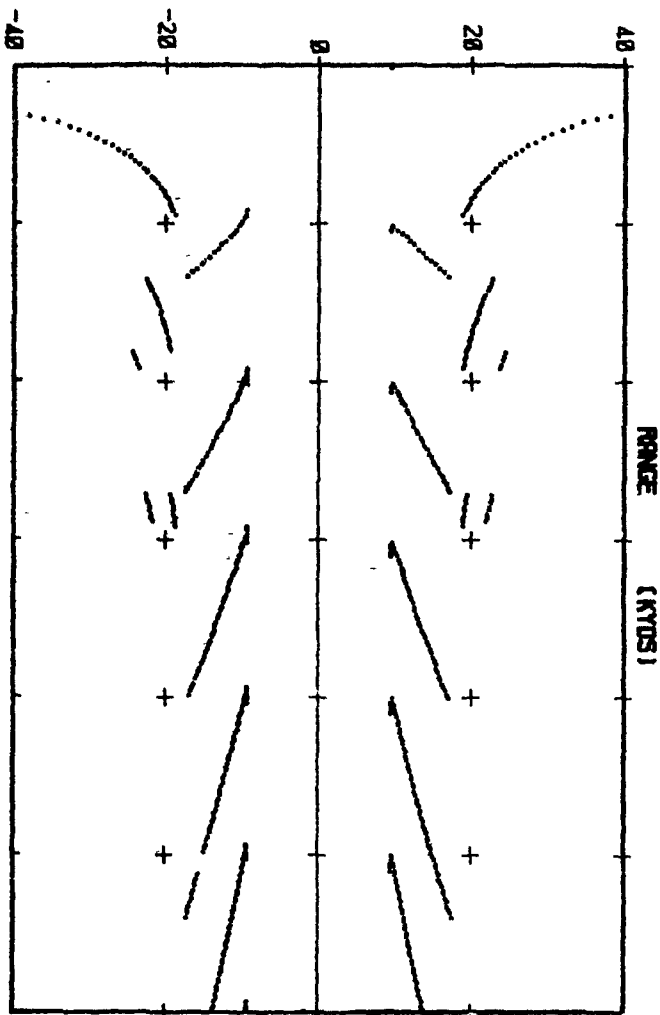
S 20 R 300 F 300

LRAPP

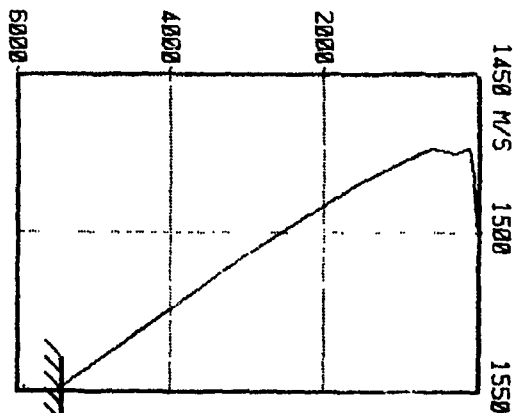
DB LOSS



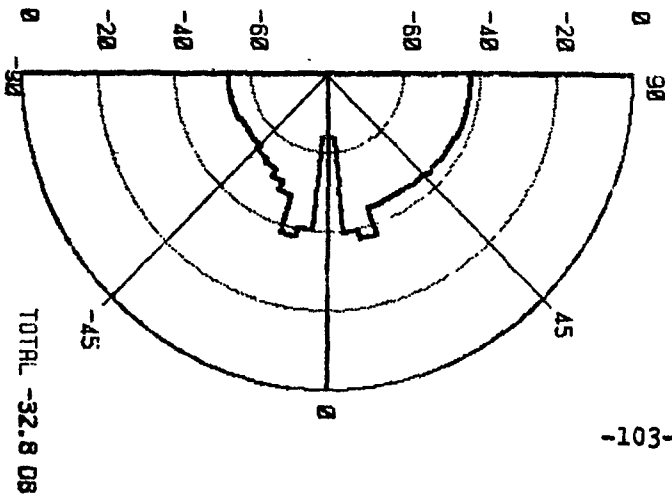
ARRIVAL ANGLE



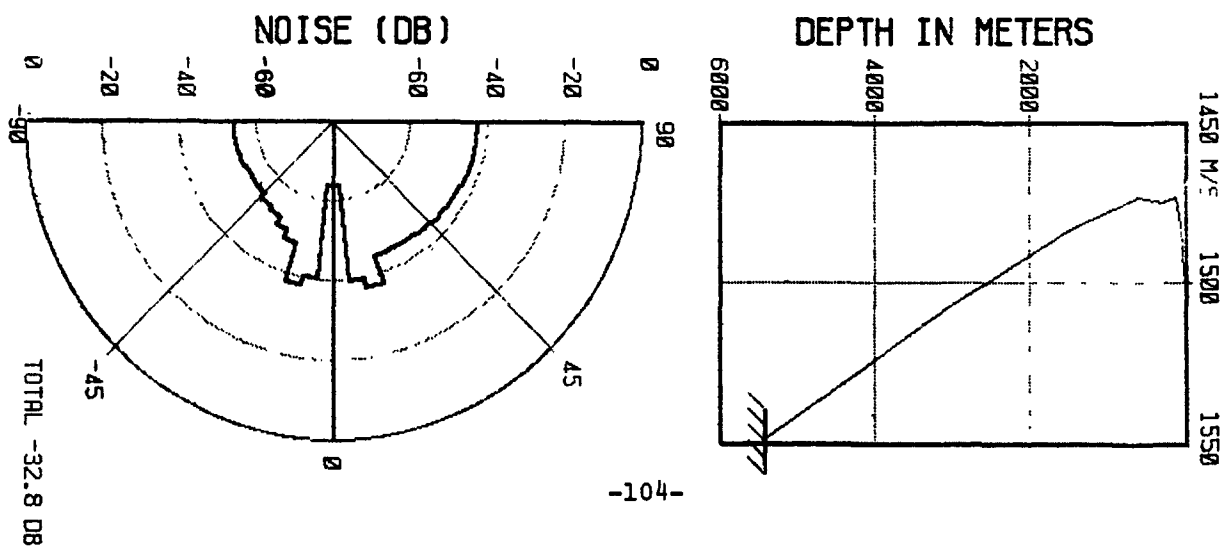
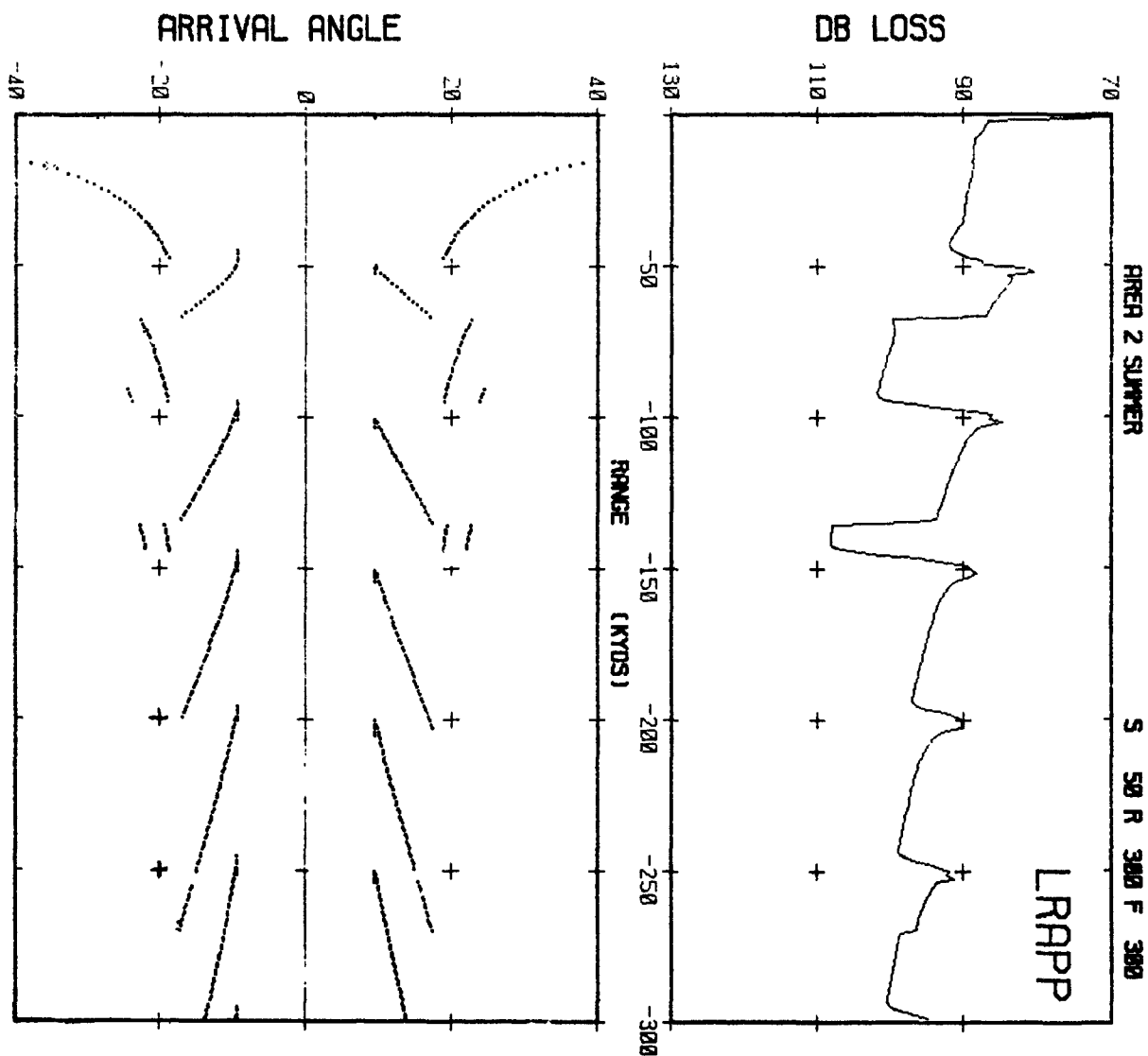
DEPTH IN METERS

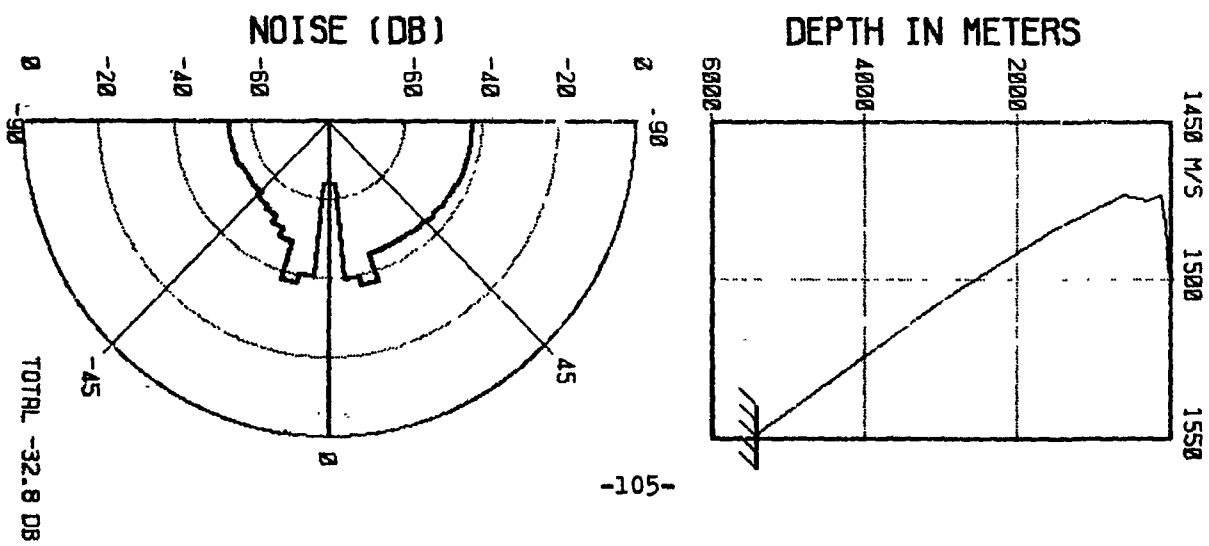
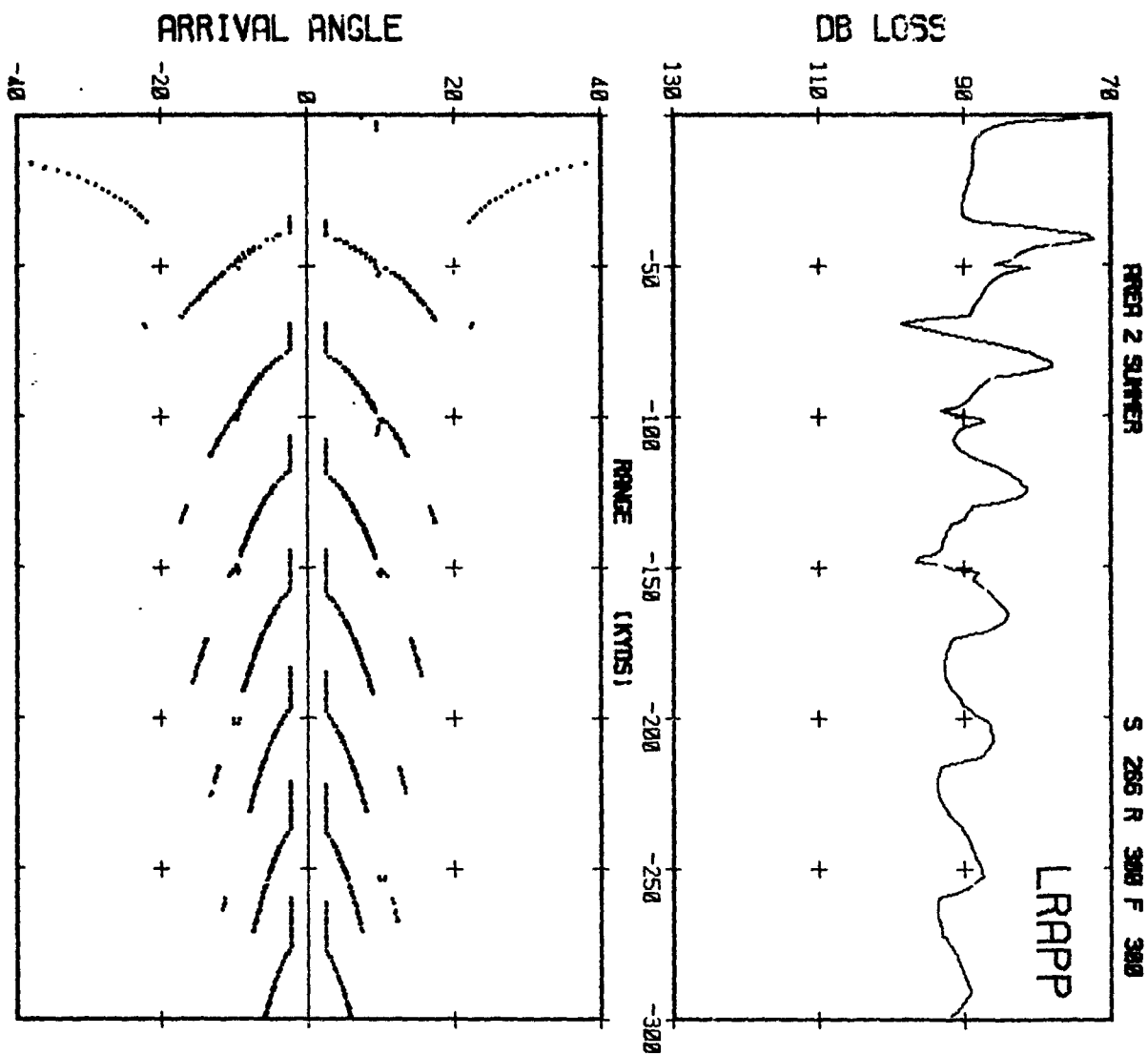


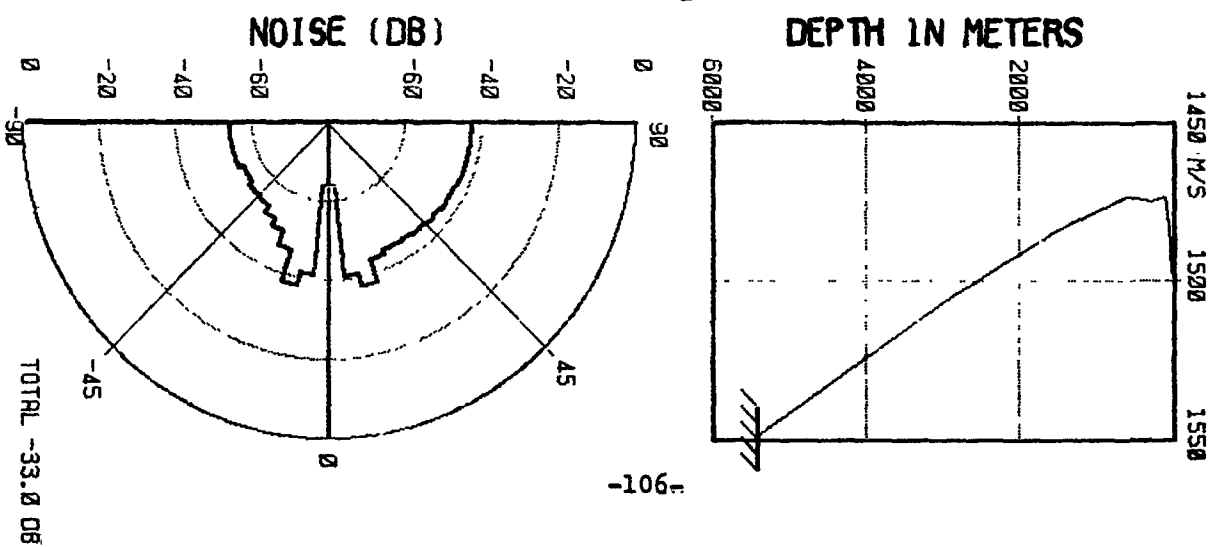
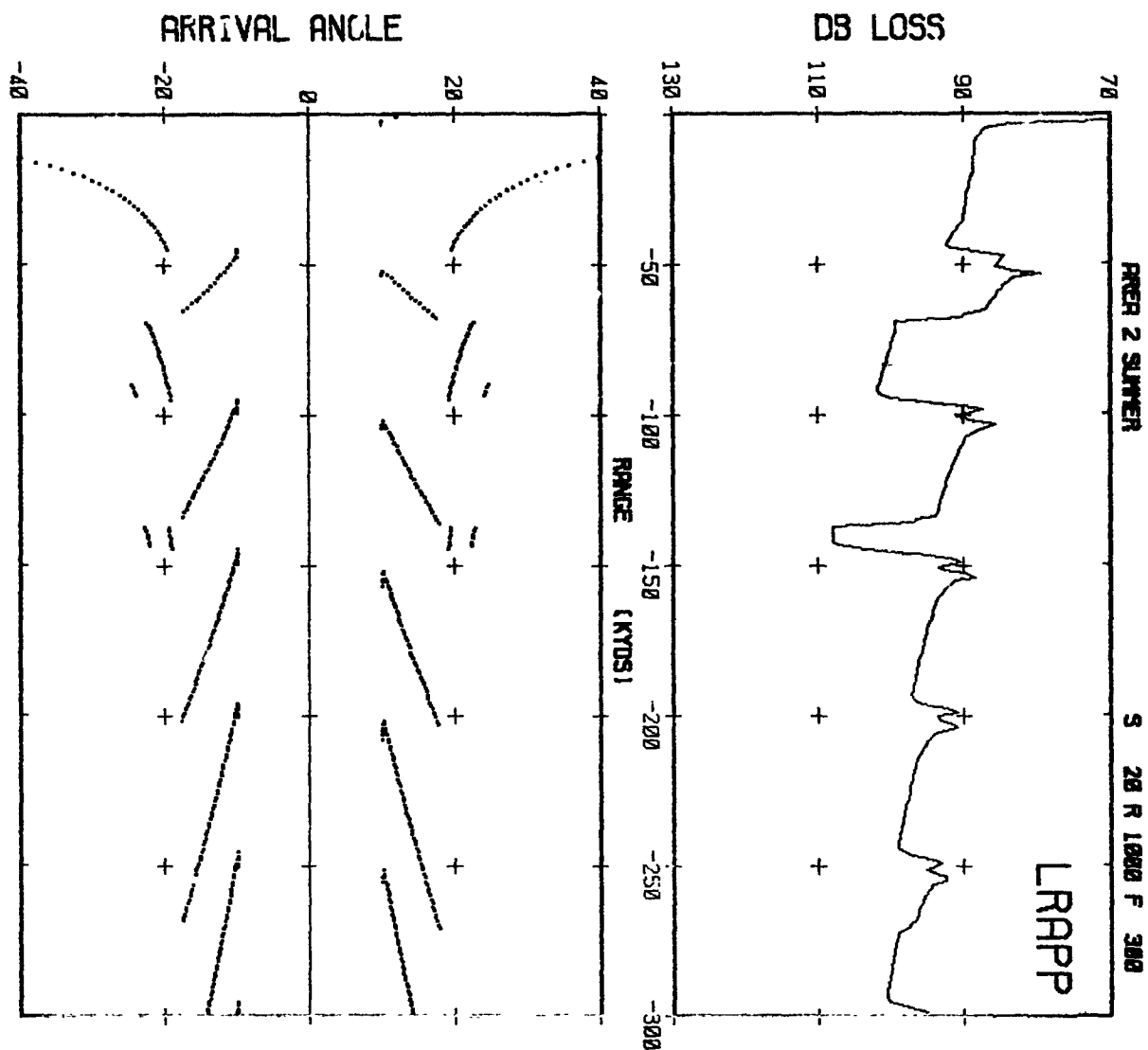
NOISE (DB)

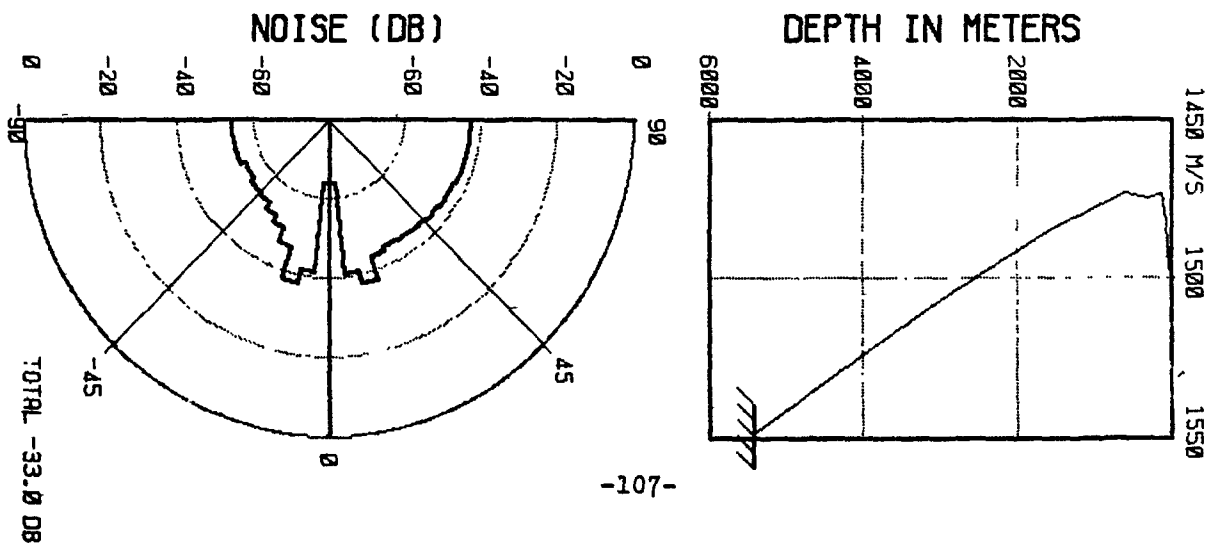
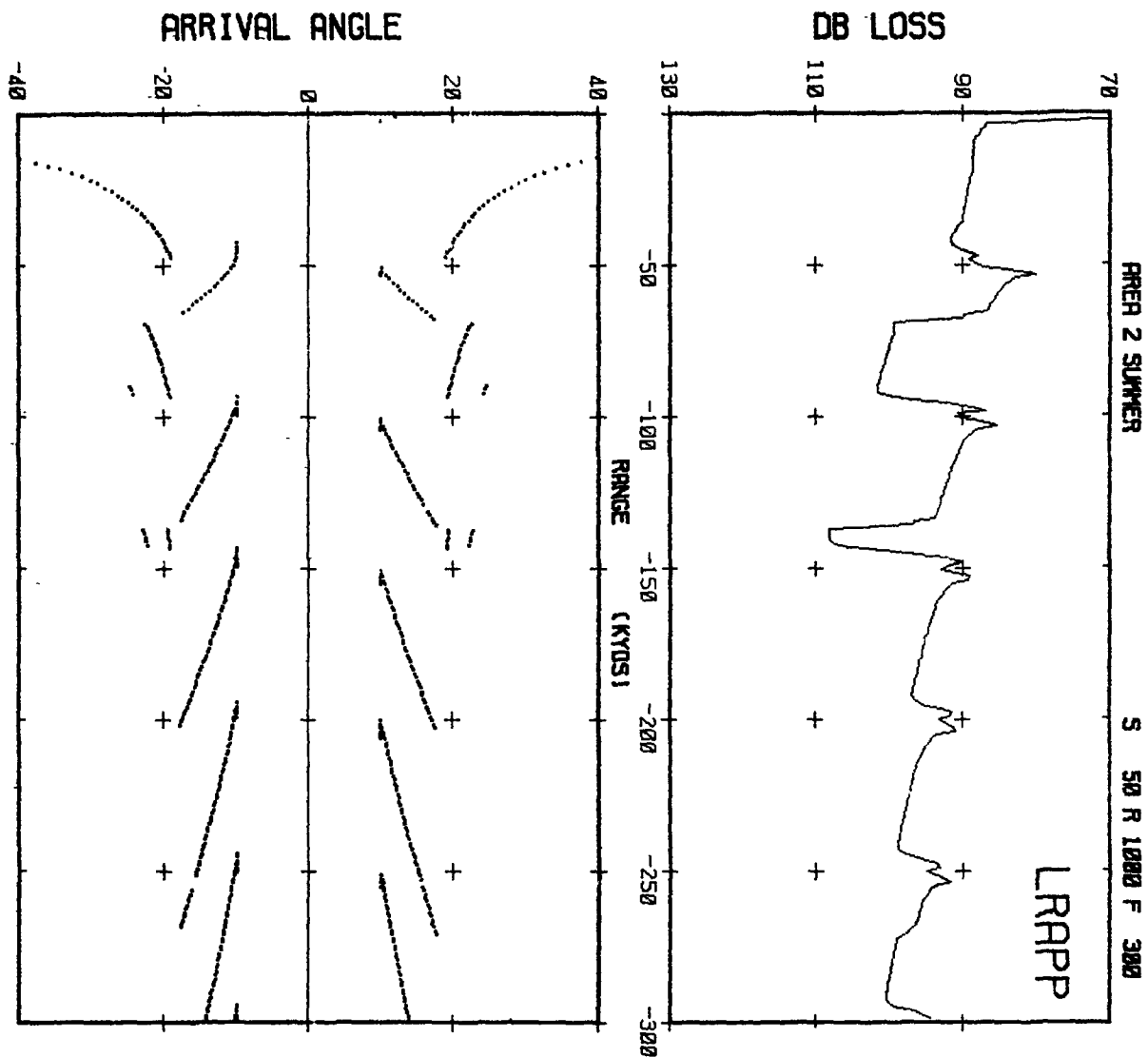


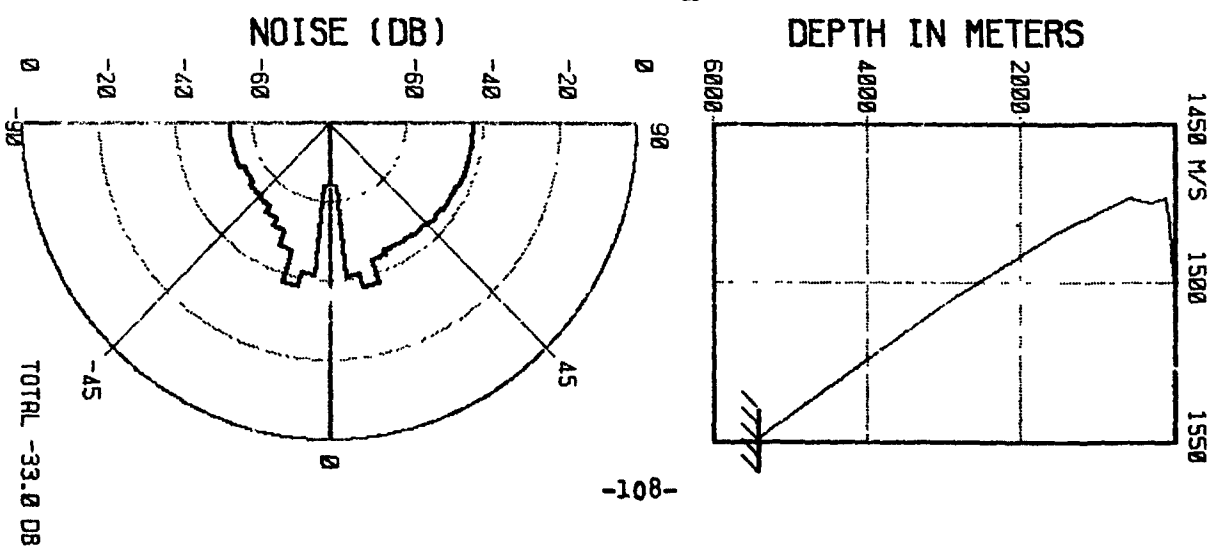
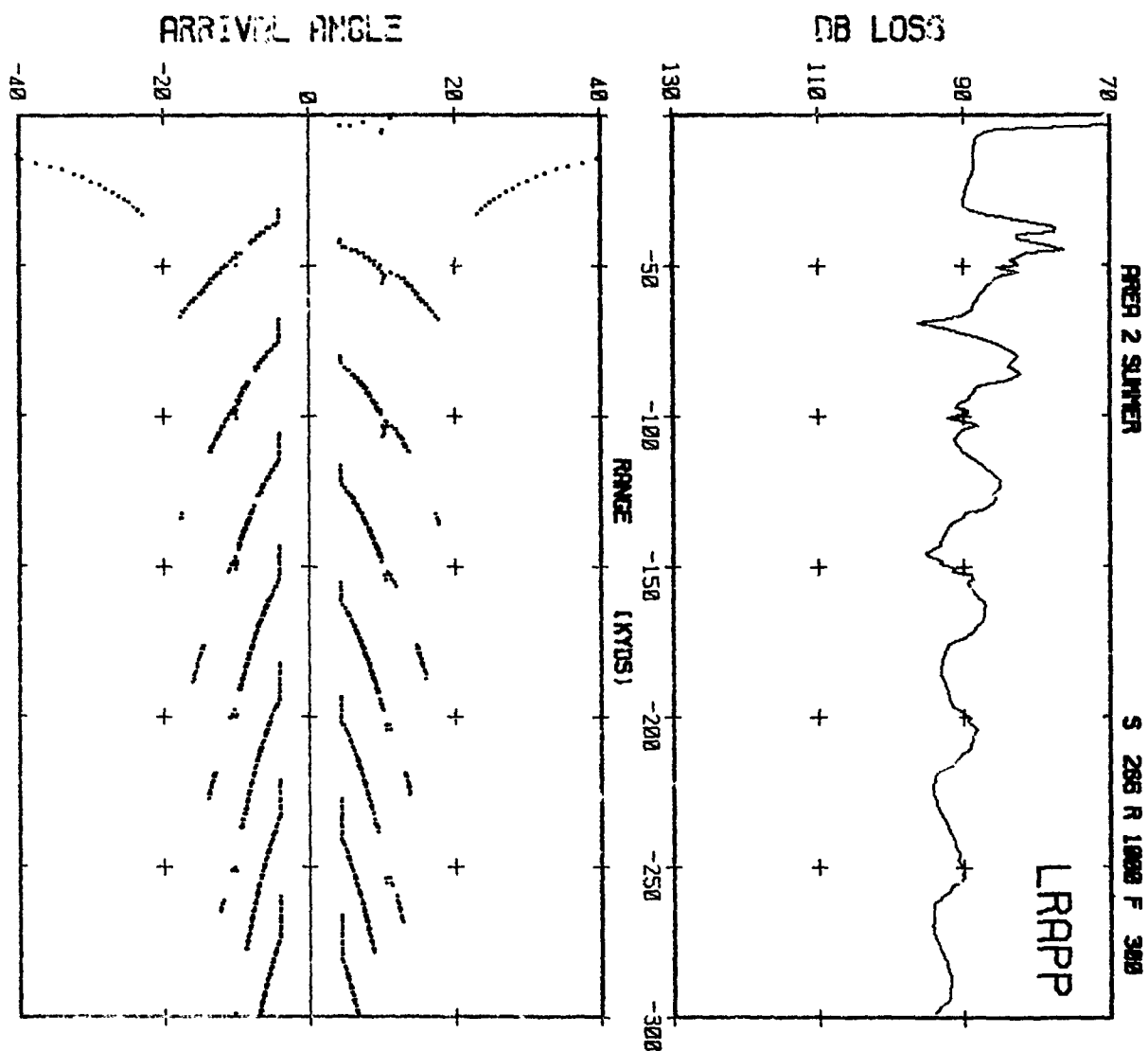


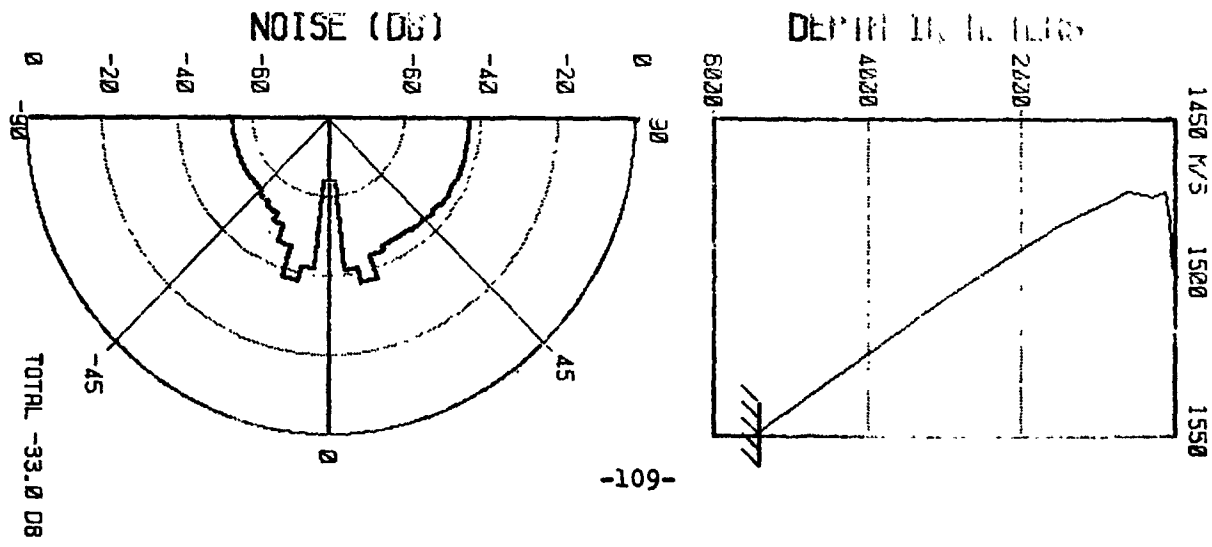
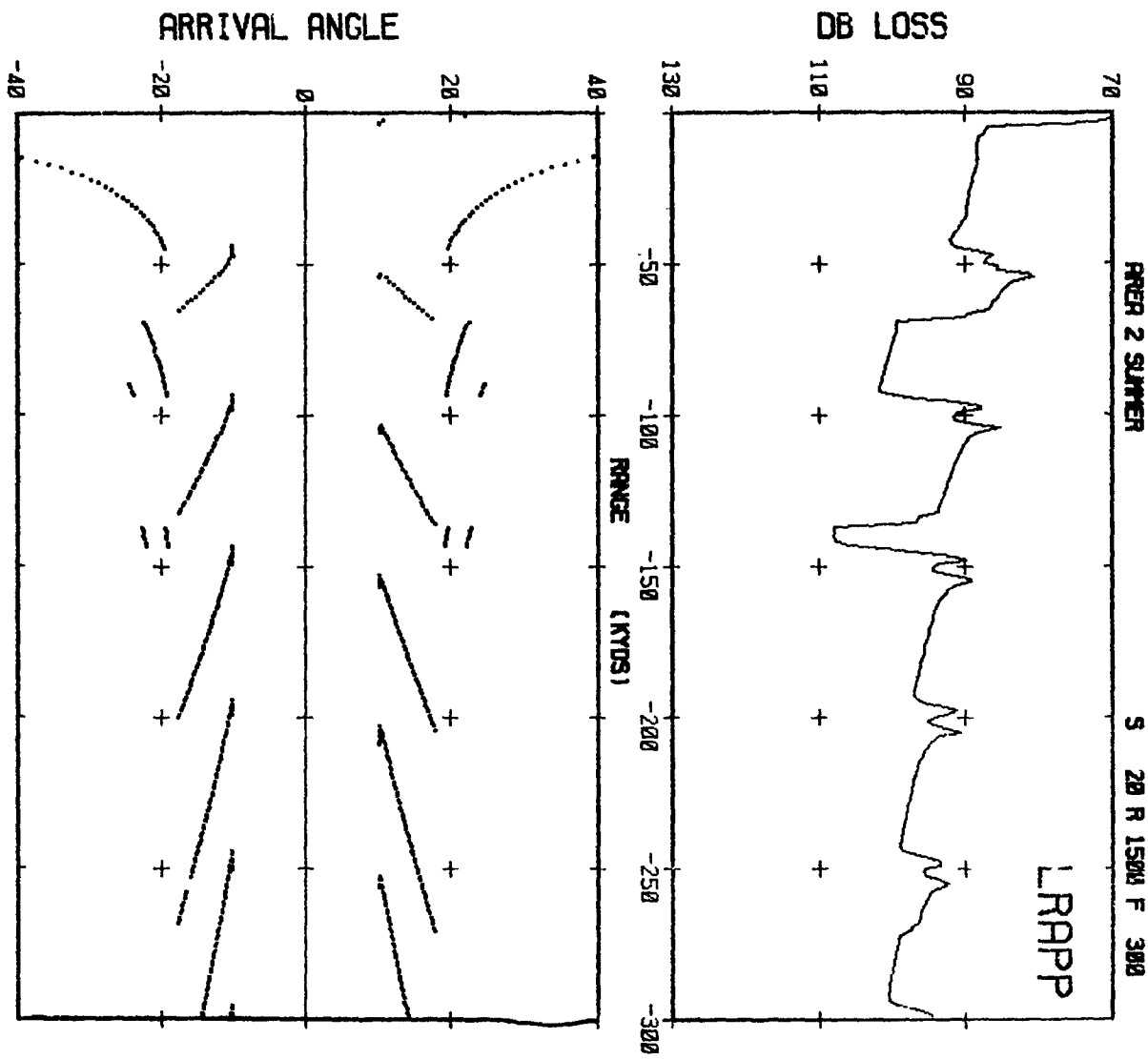


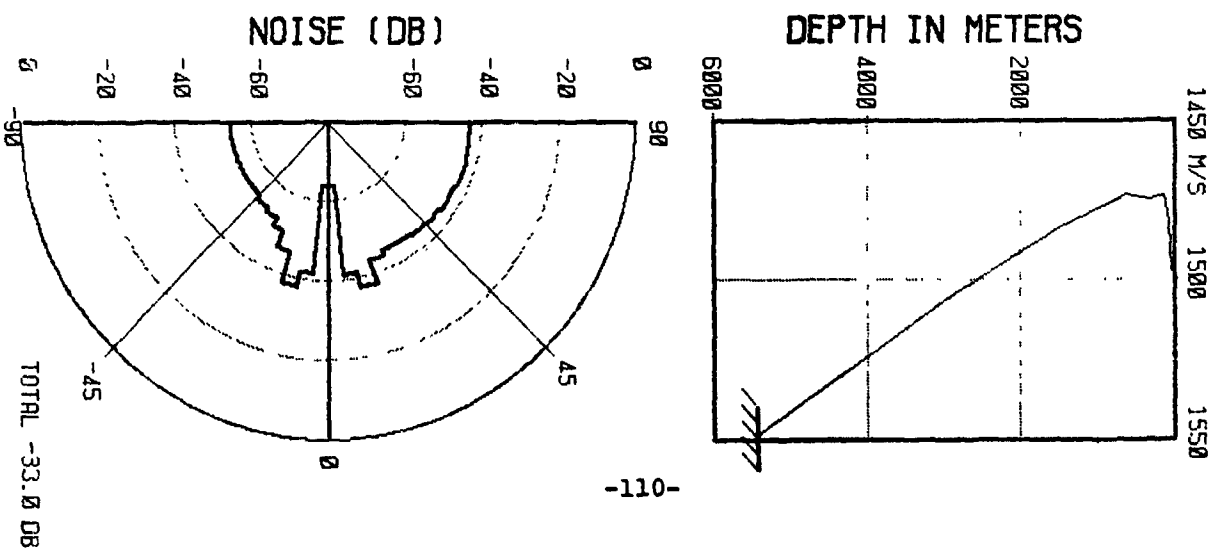
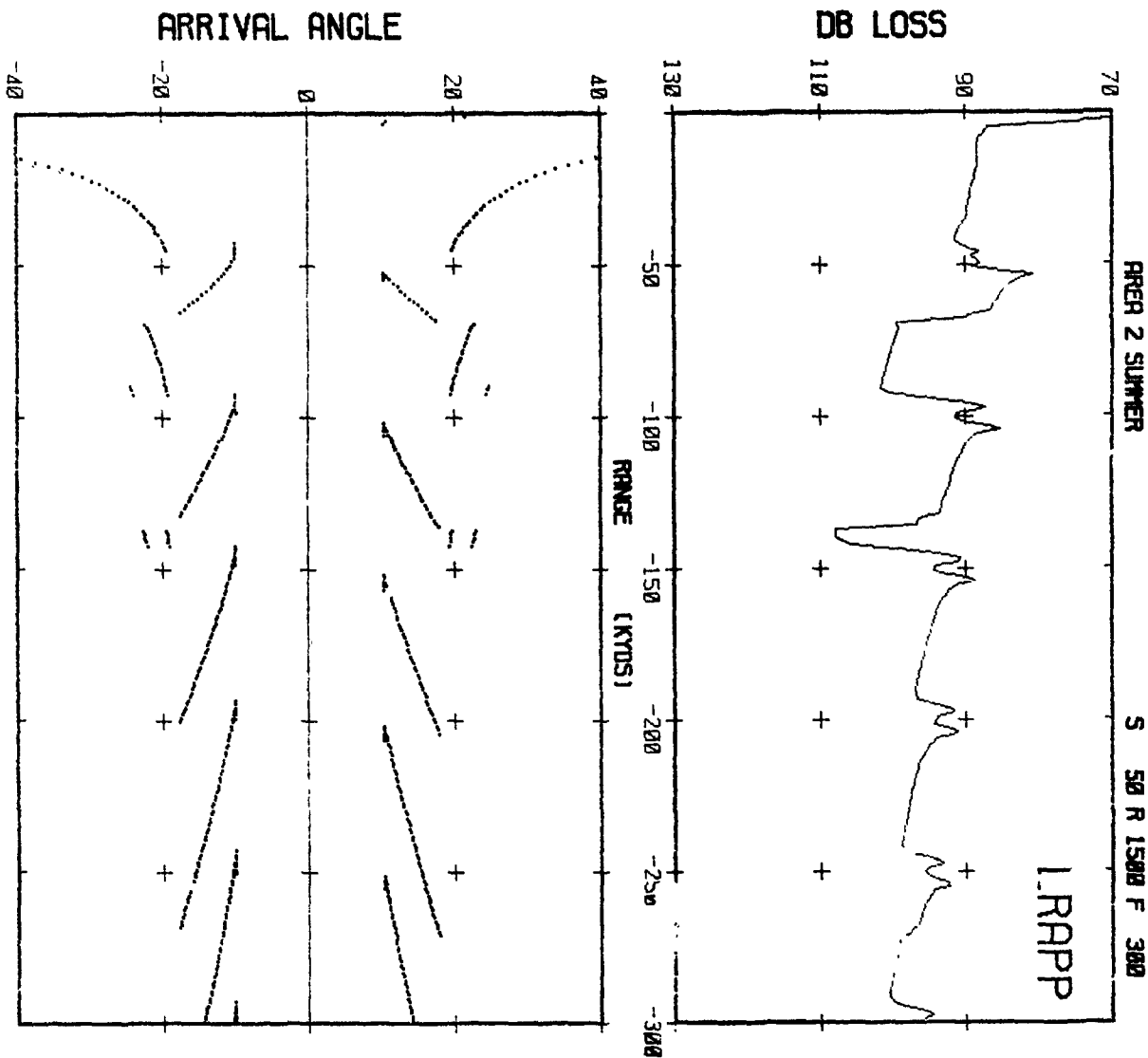


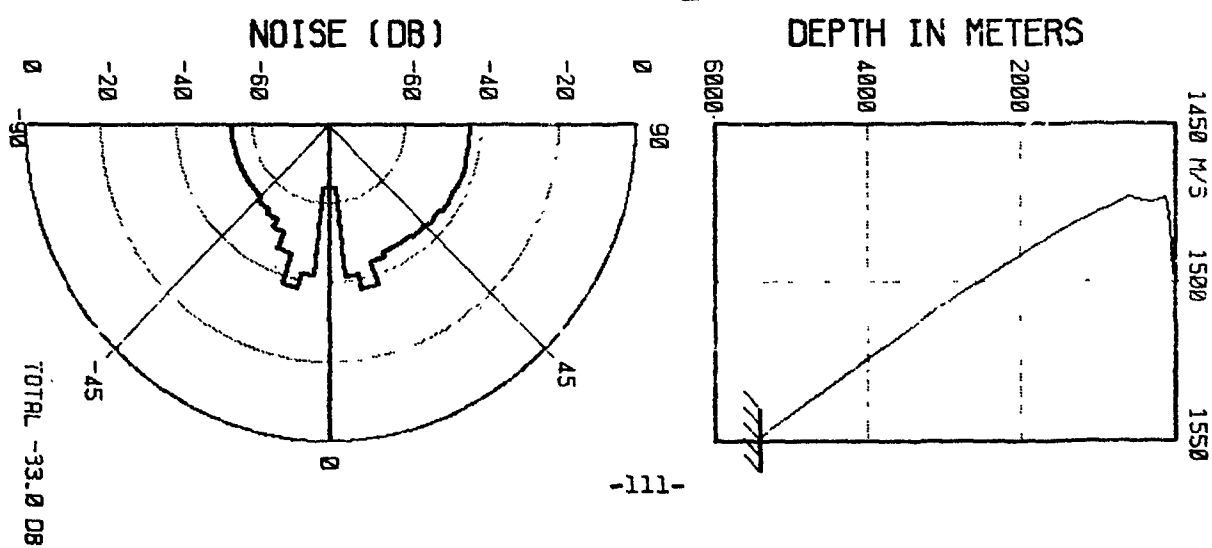
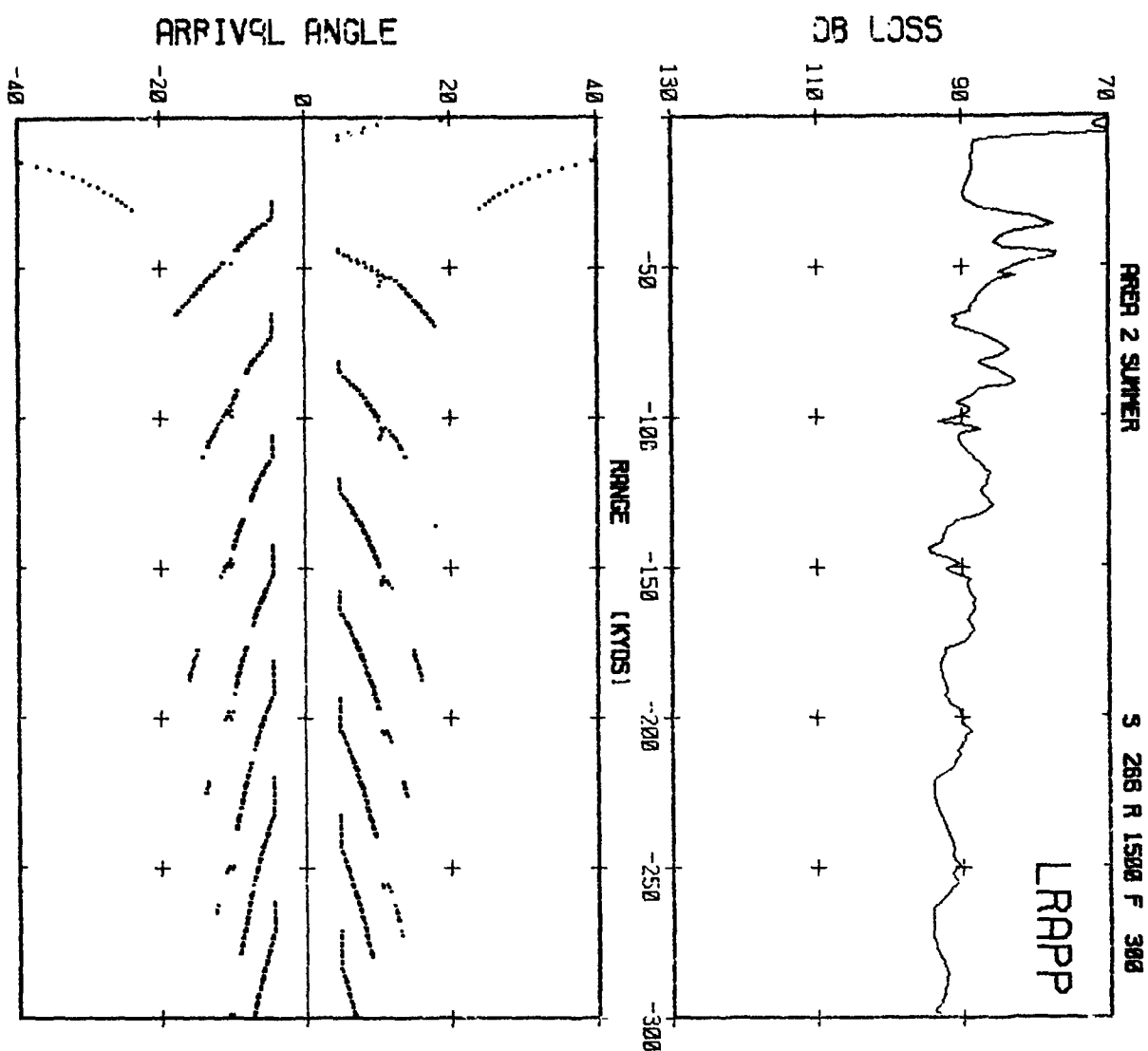










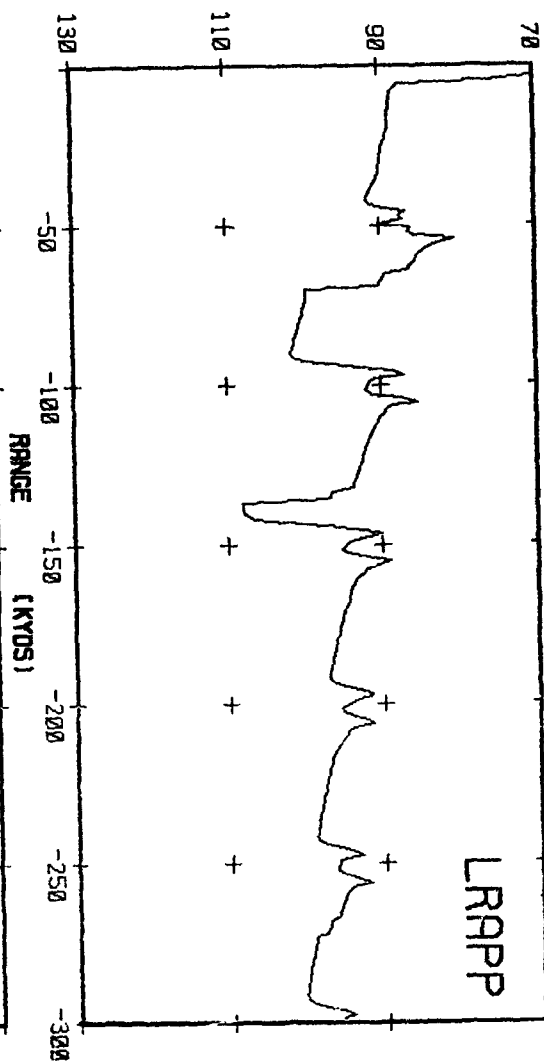




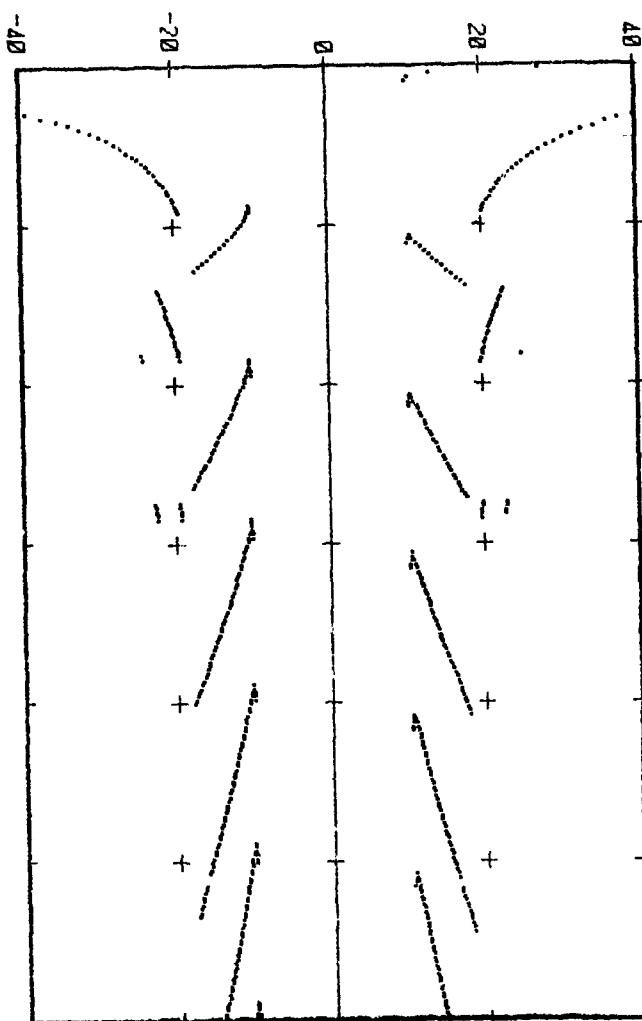
PRER 2 SUMMER

S 28 R 1968 F 308

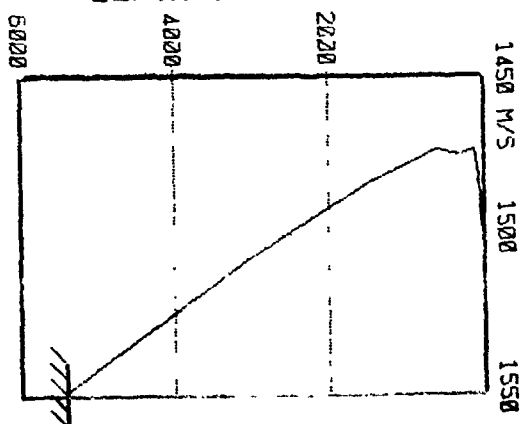
DB LOSS



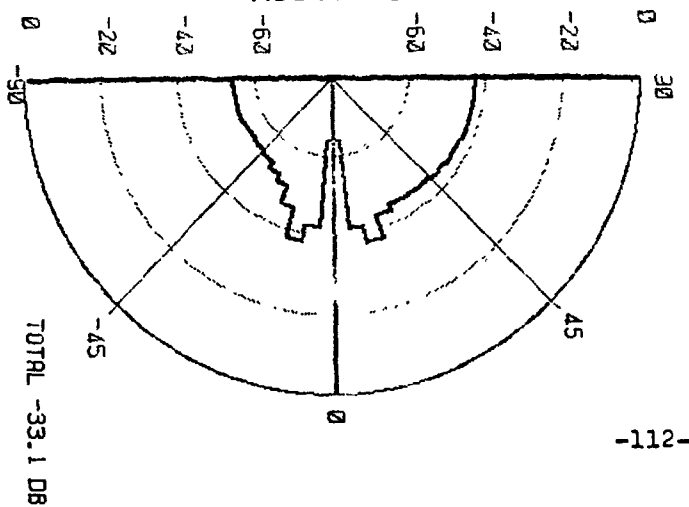
ARRIVAL ANGLE

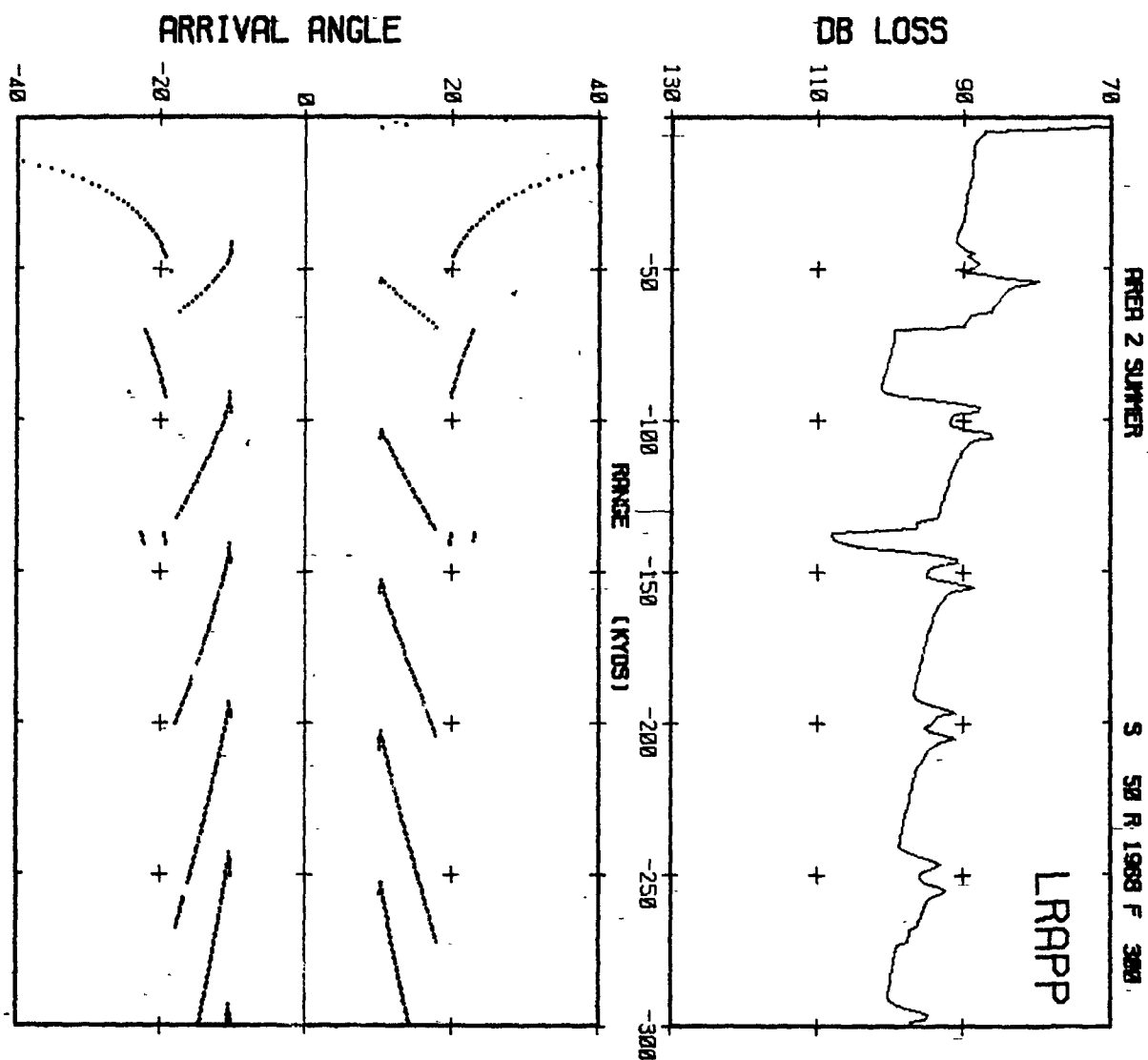


DEPTH IN METERS



NOISE (DB)



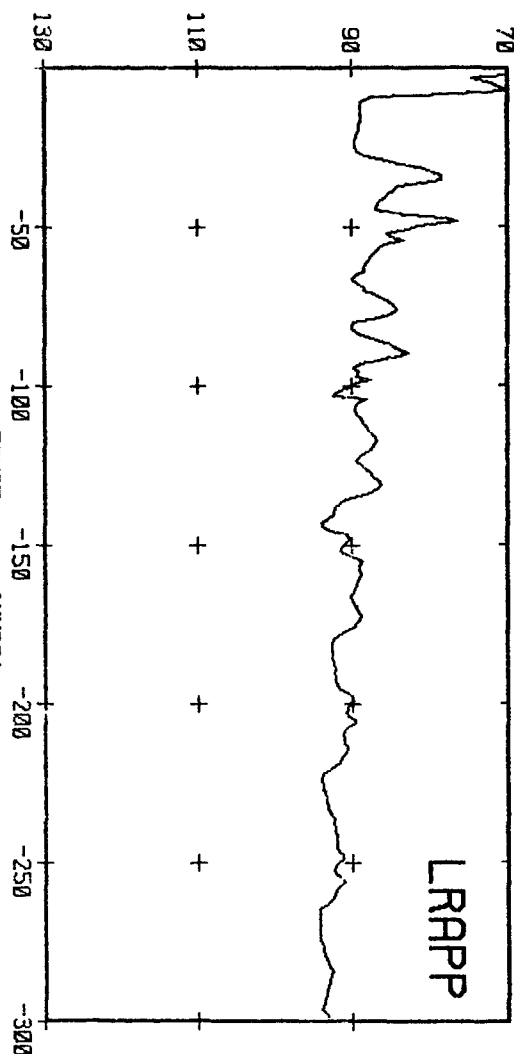


AREA 2 SUMMER

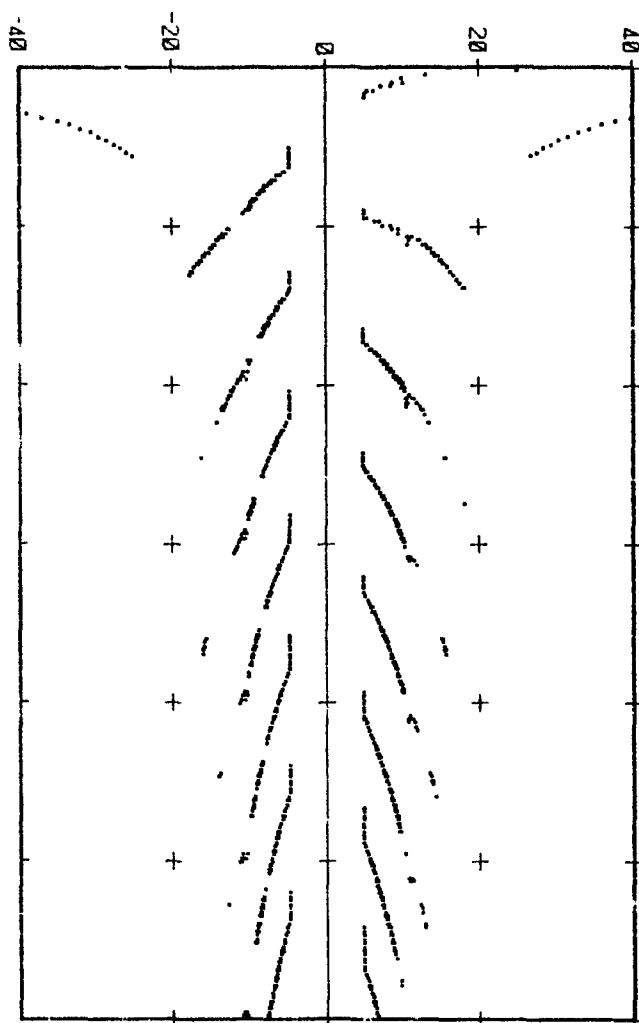
S 268 R 1968 F 300

LRAPP

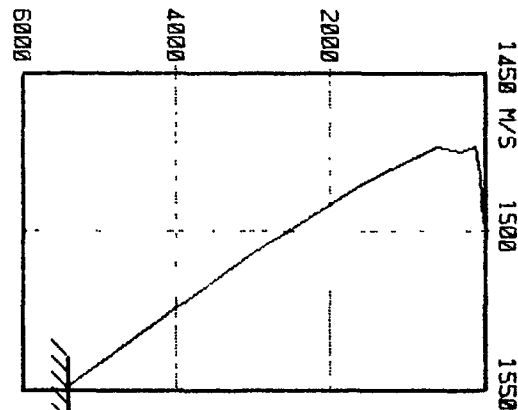
DB LOSS



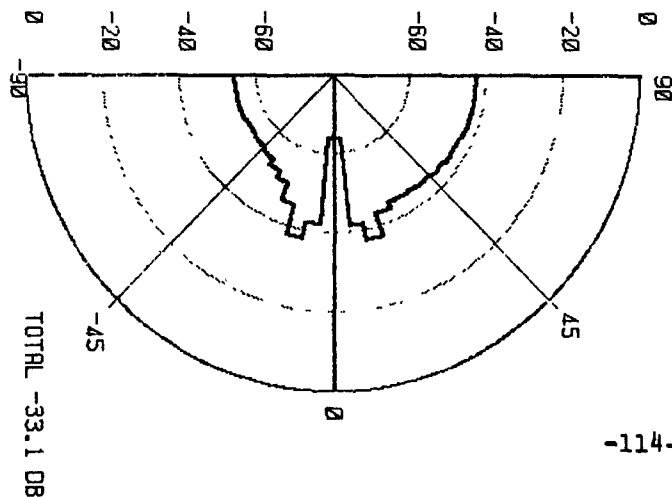
ARRIVAL ANGLE

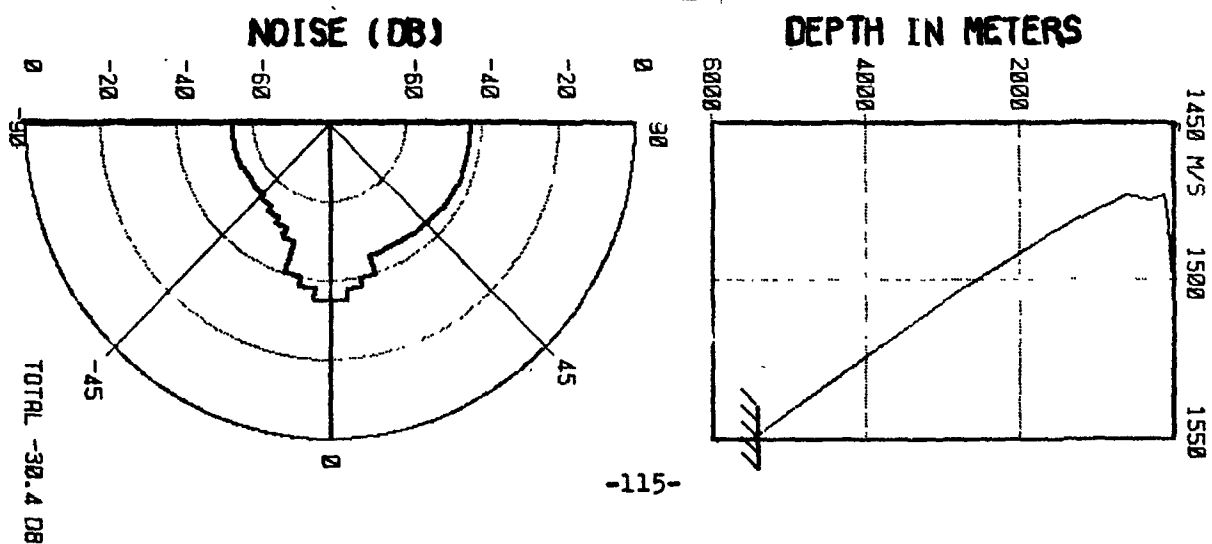
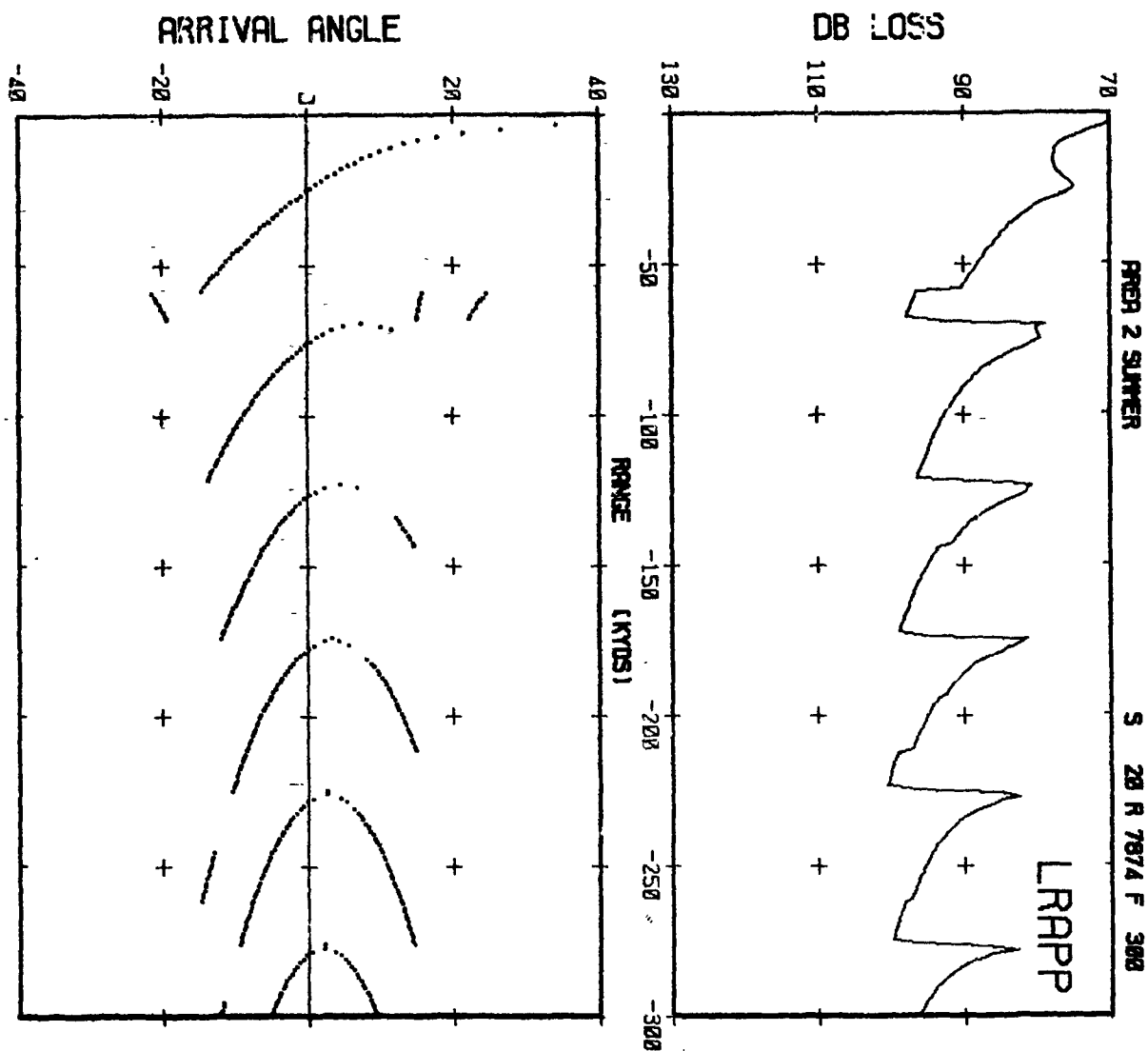


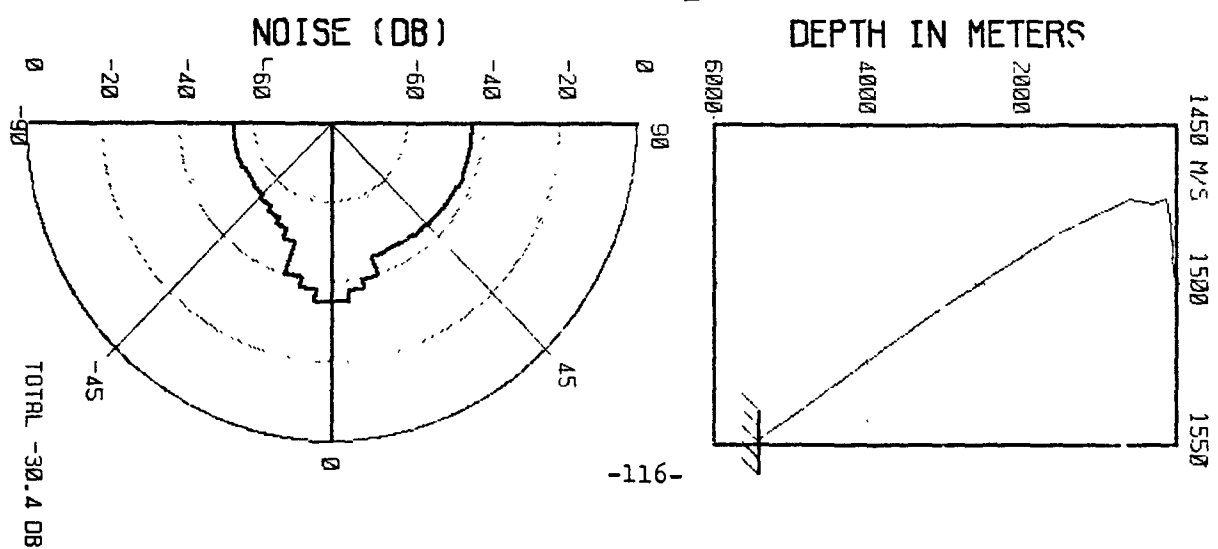
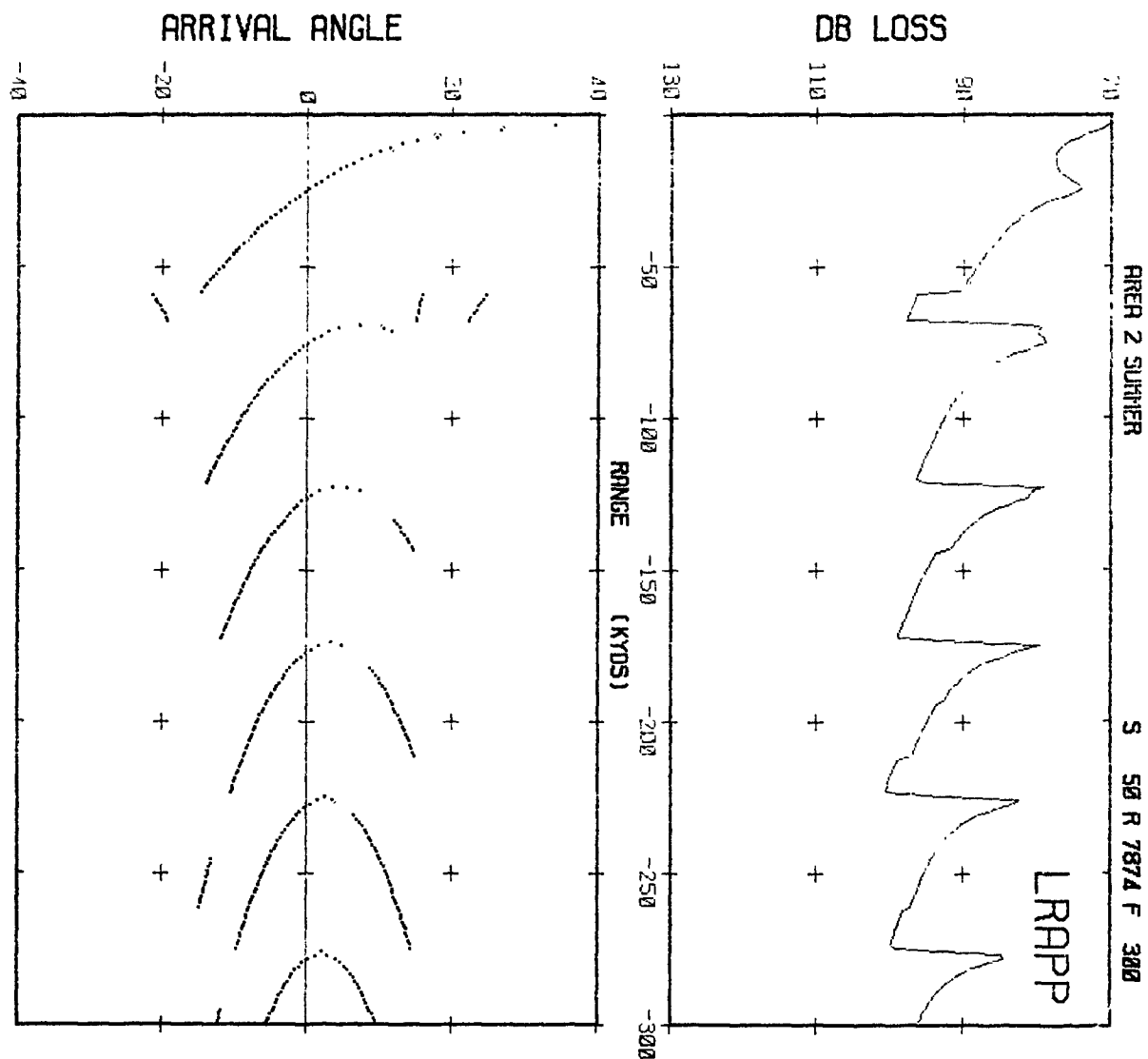
DEPTH IN METERS

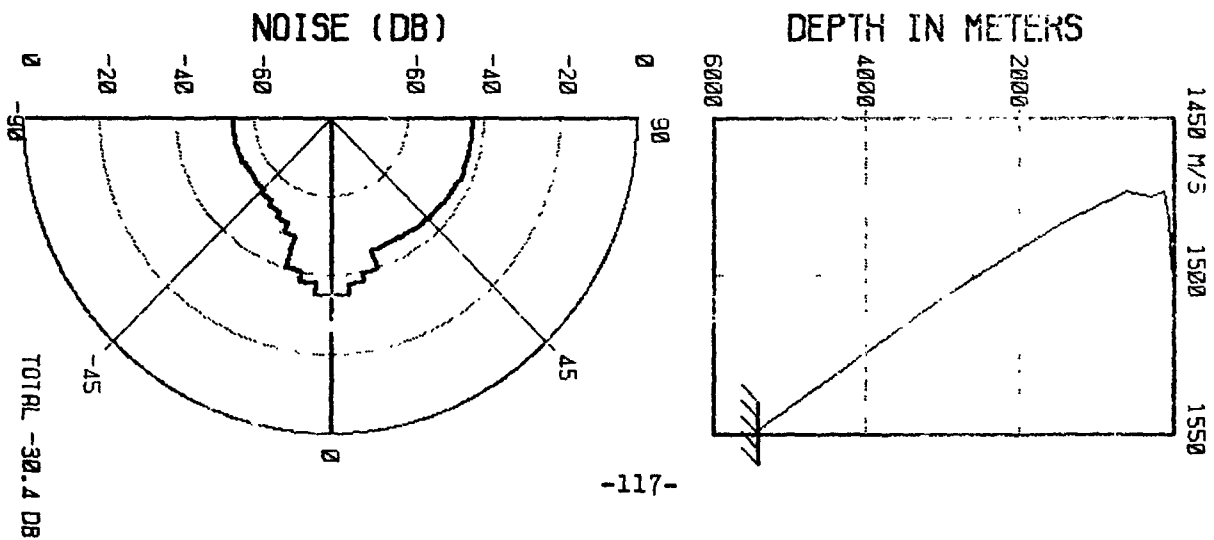
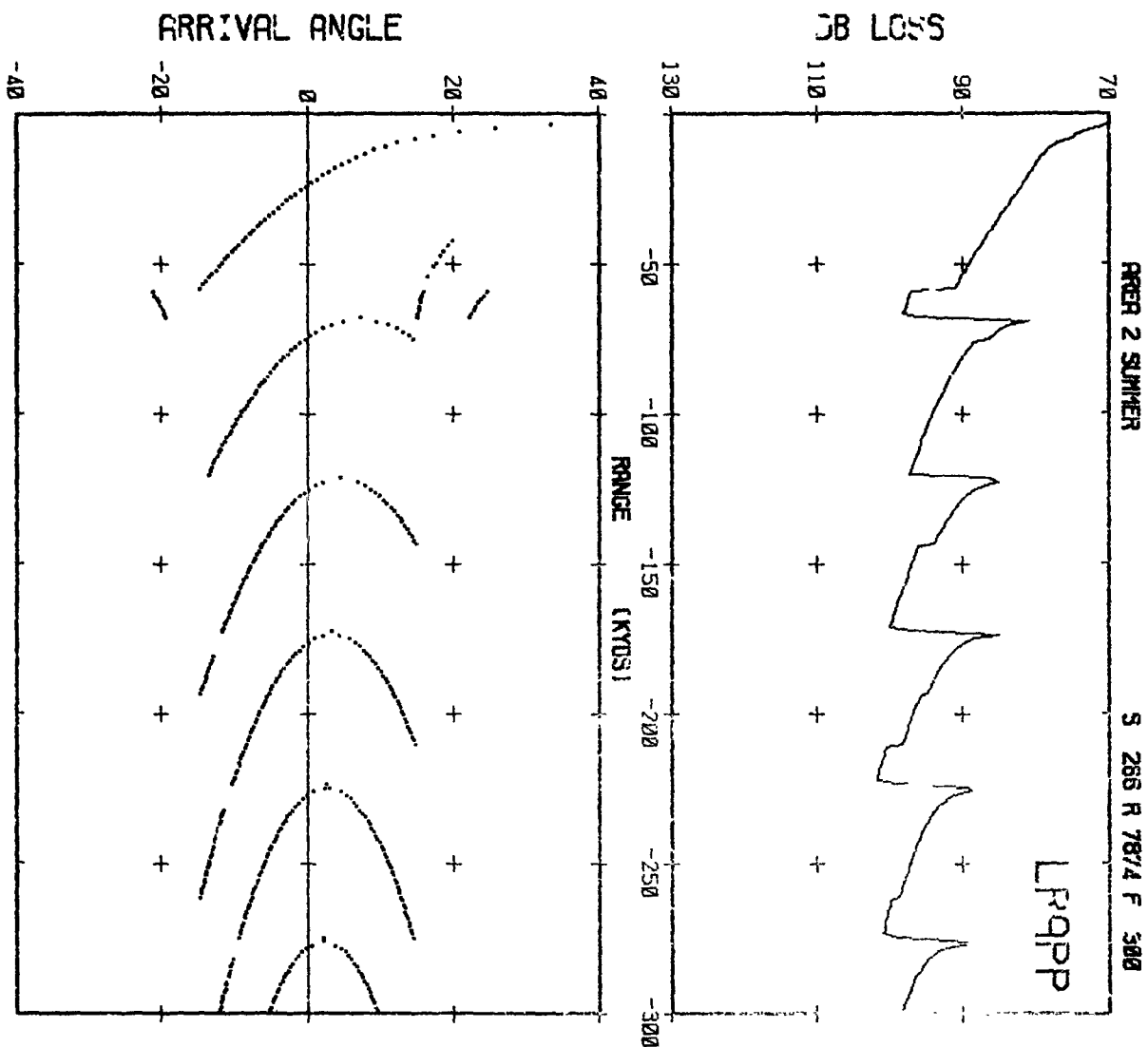


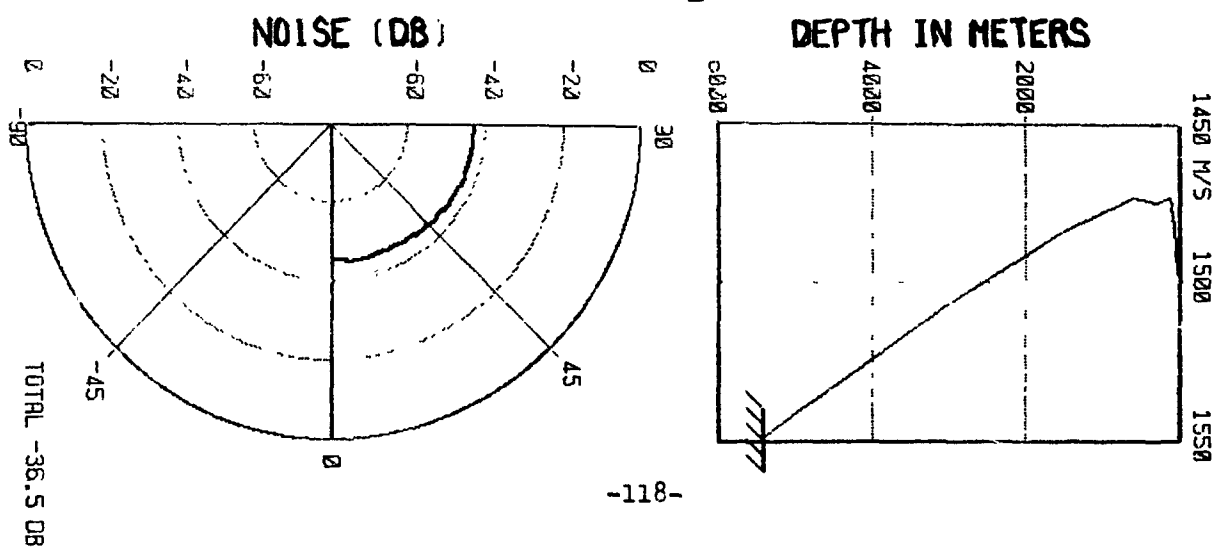
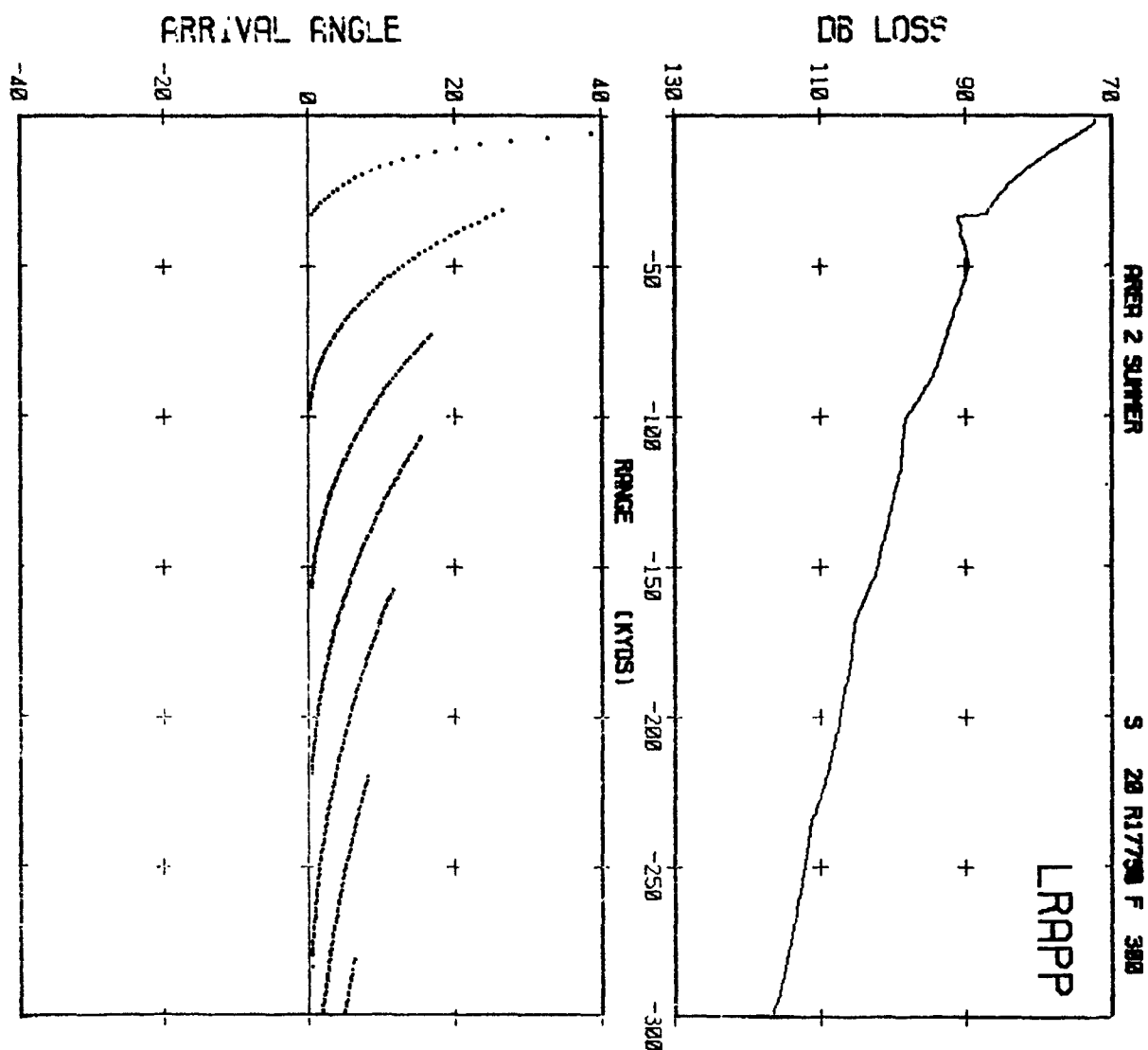
NOISE (DB)





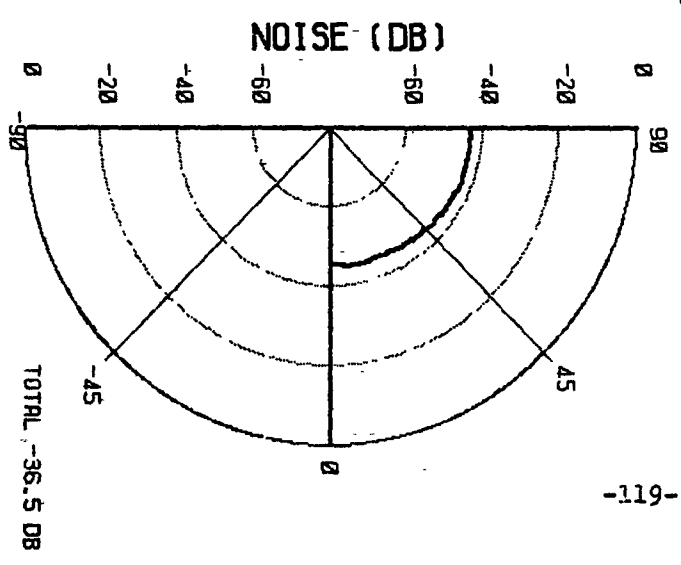
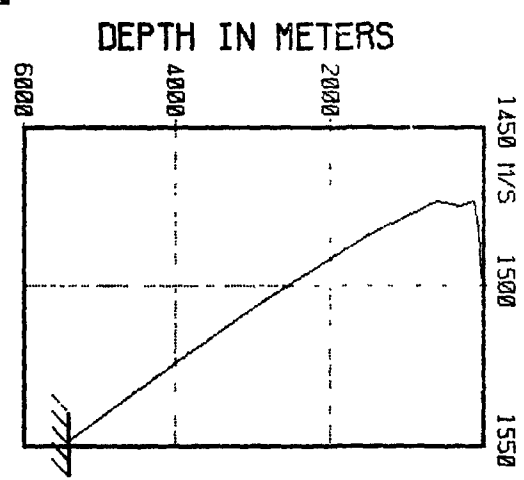
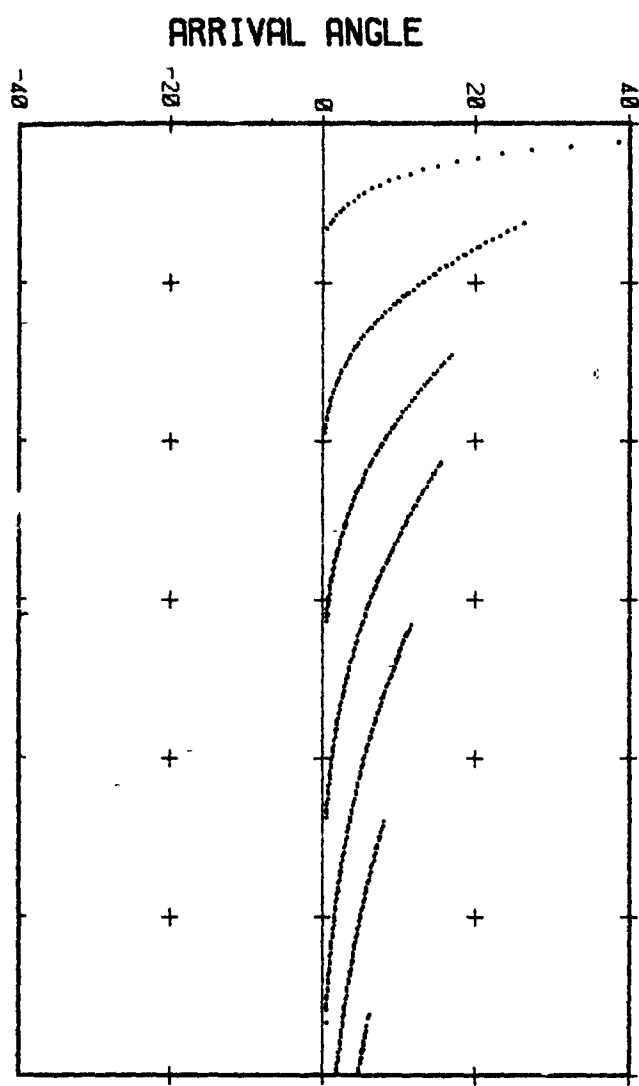
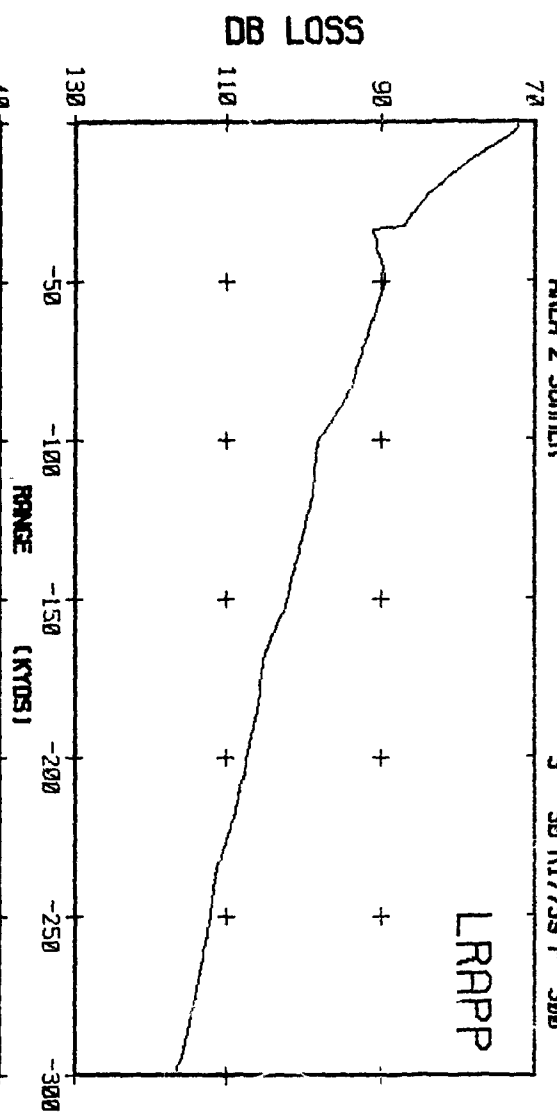




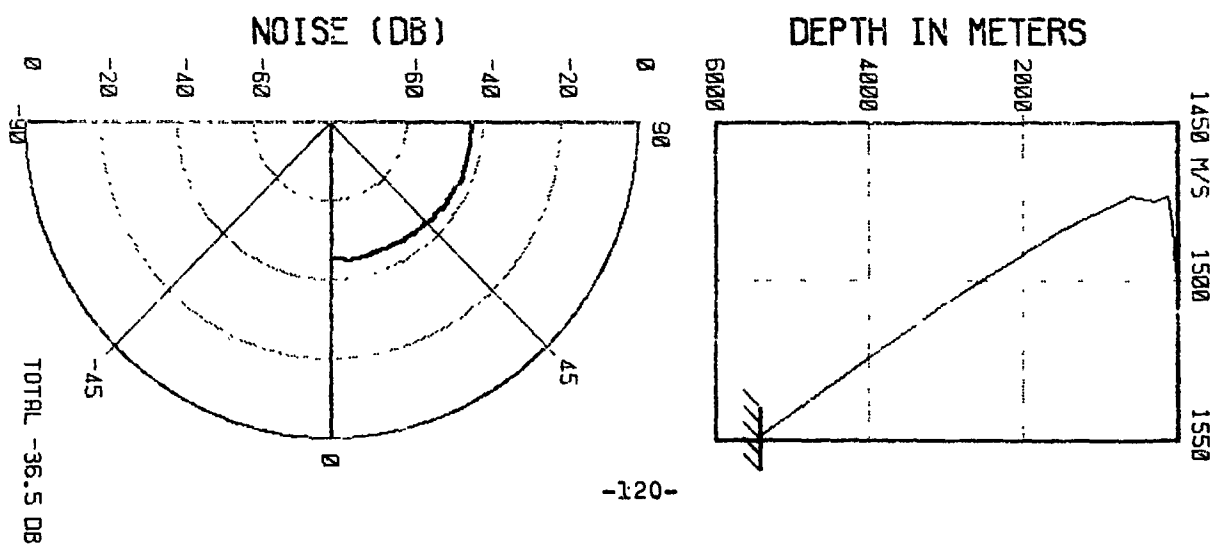
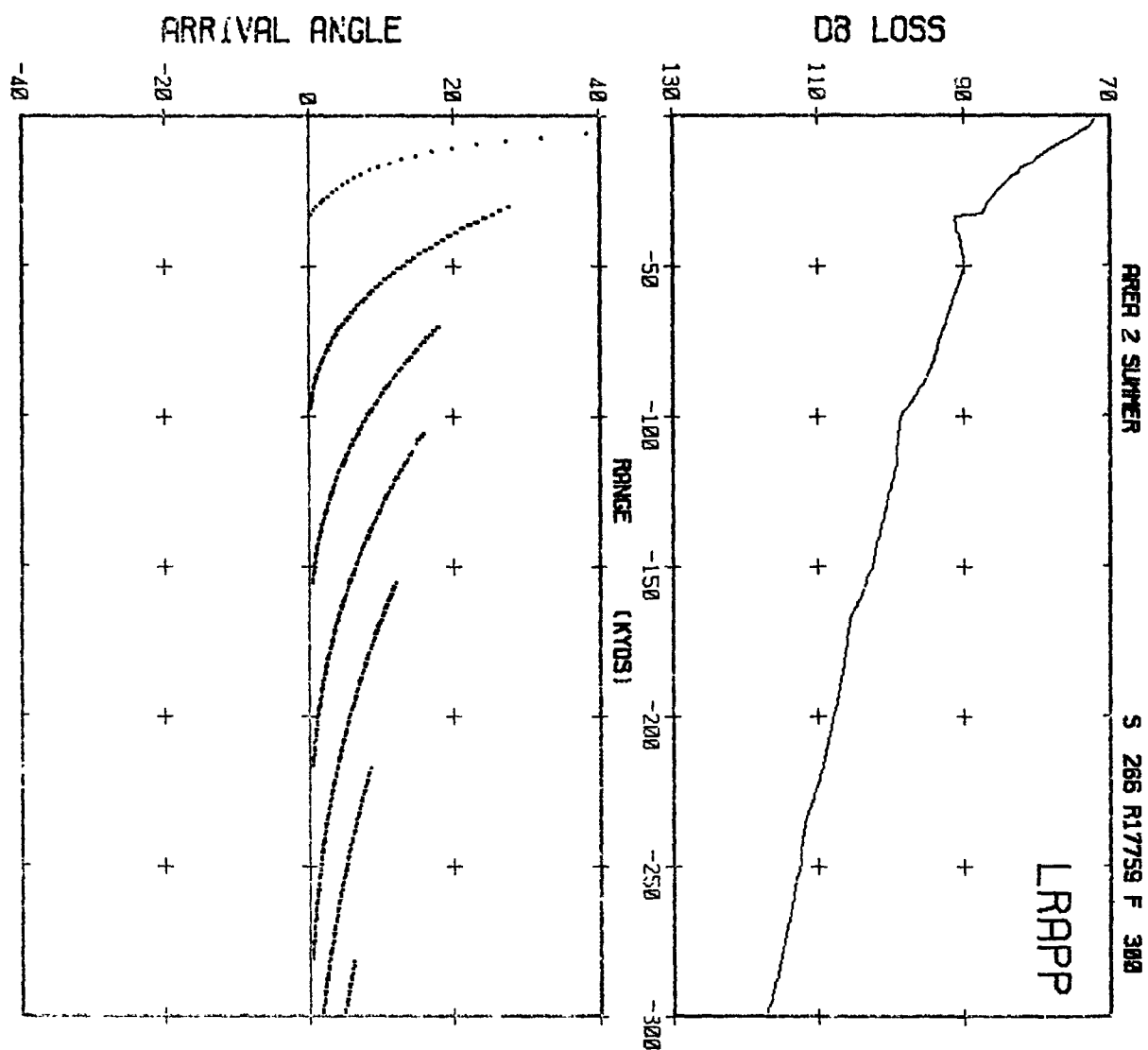


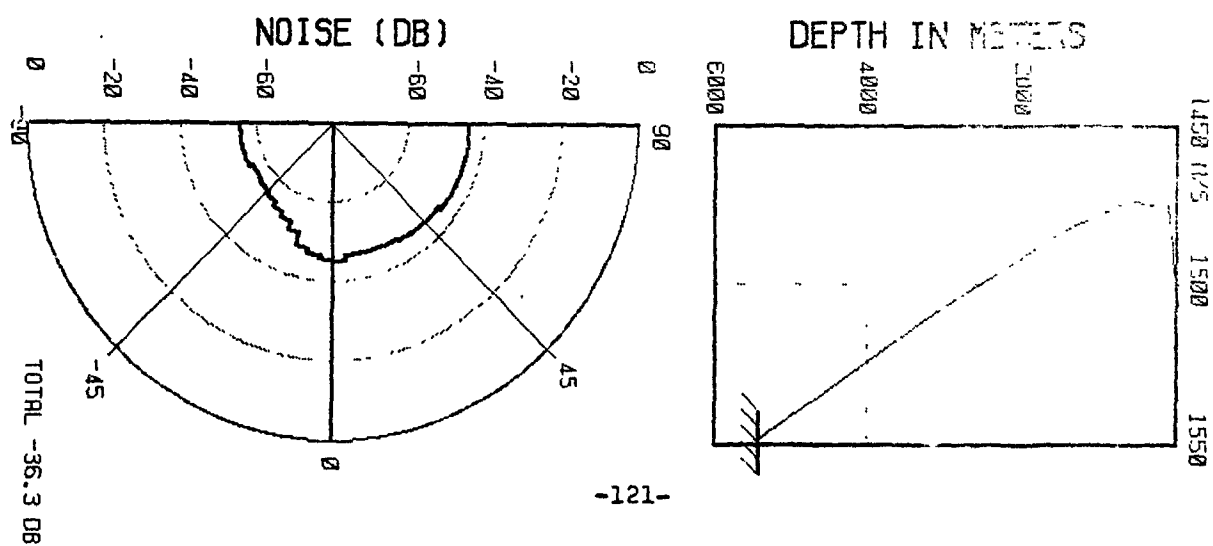
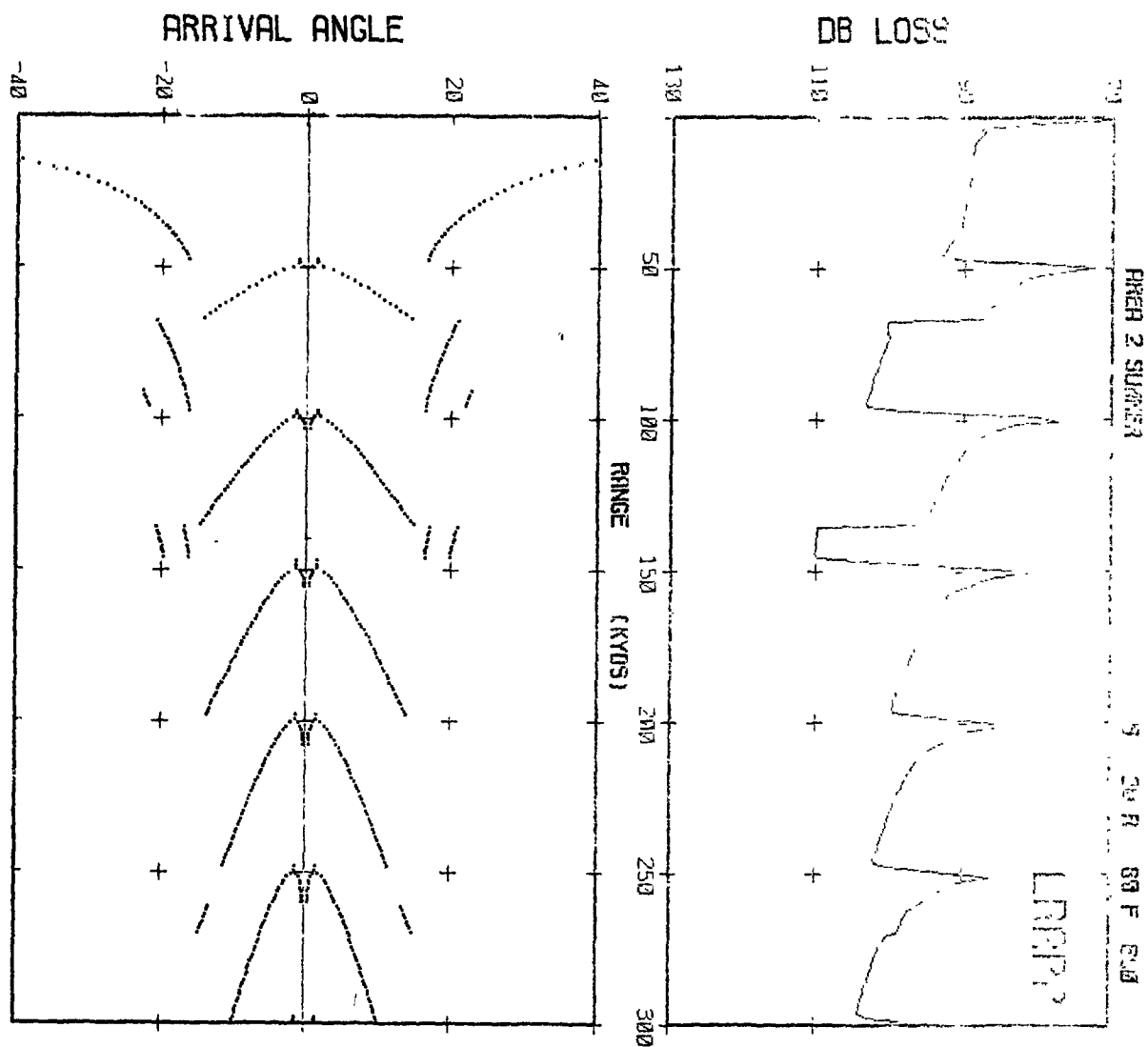
AREA 2 SUMMER S 50 R17759 F 300

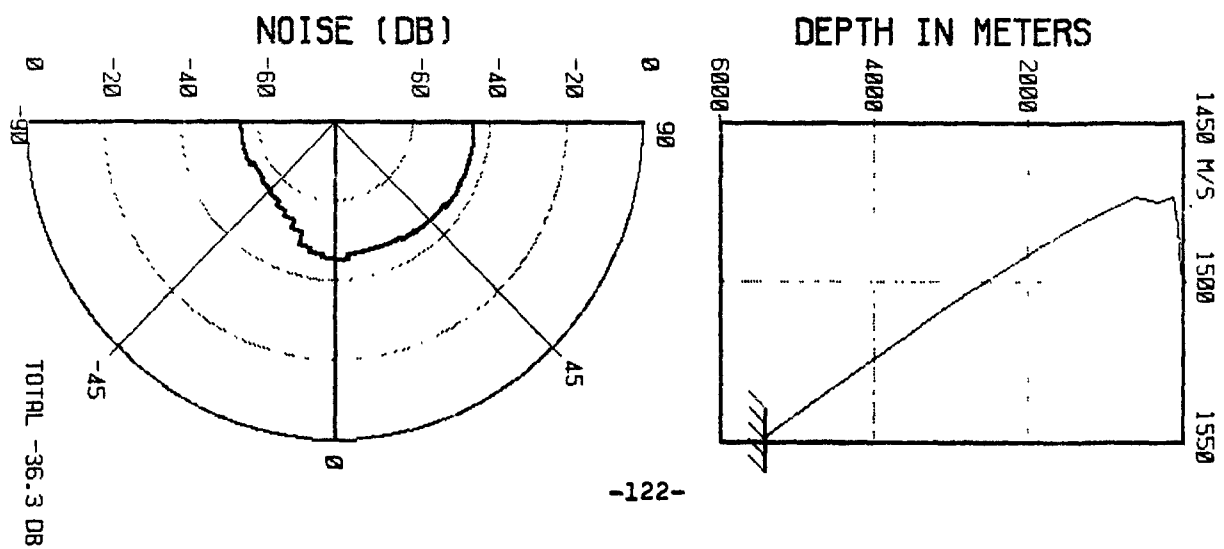
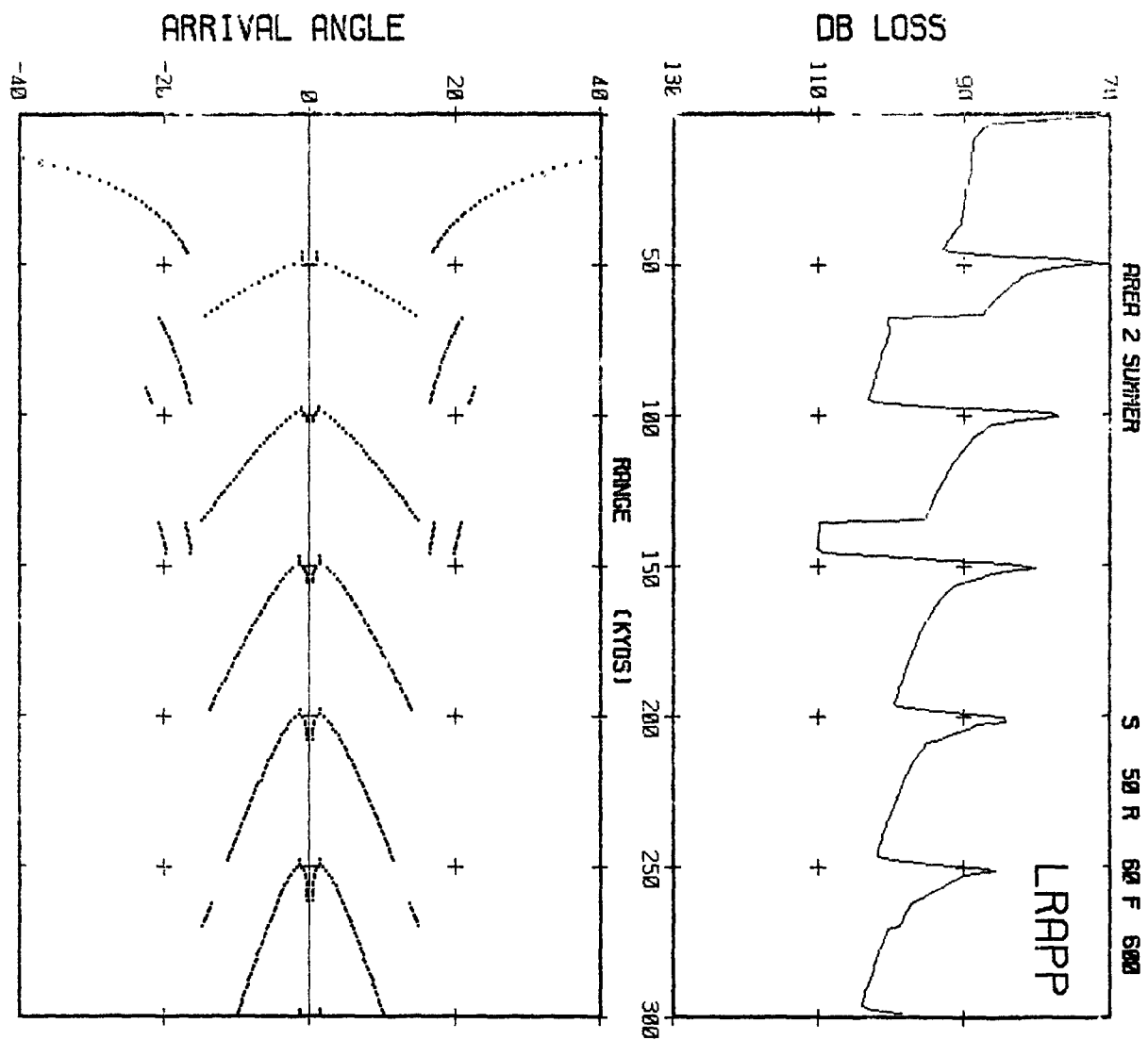
LRAPP

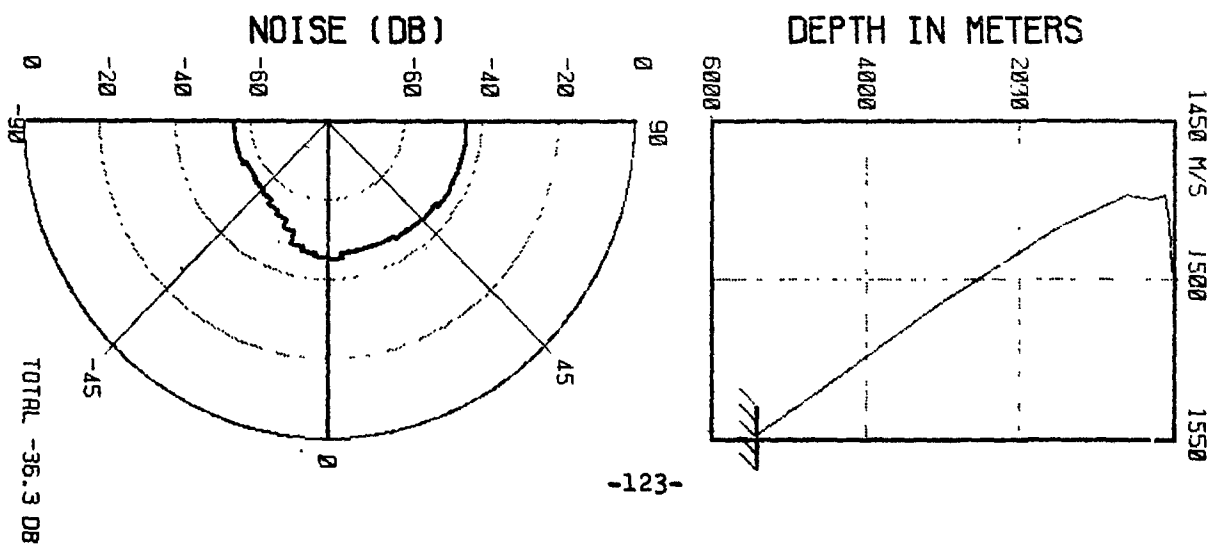
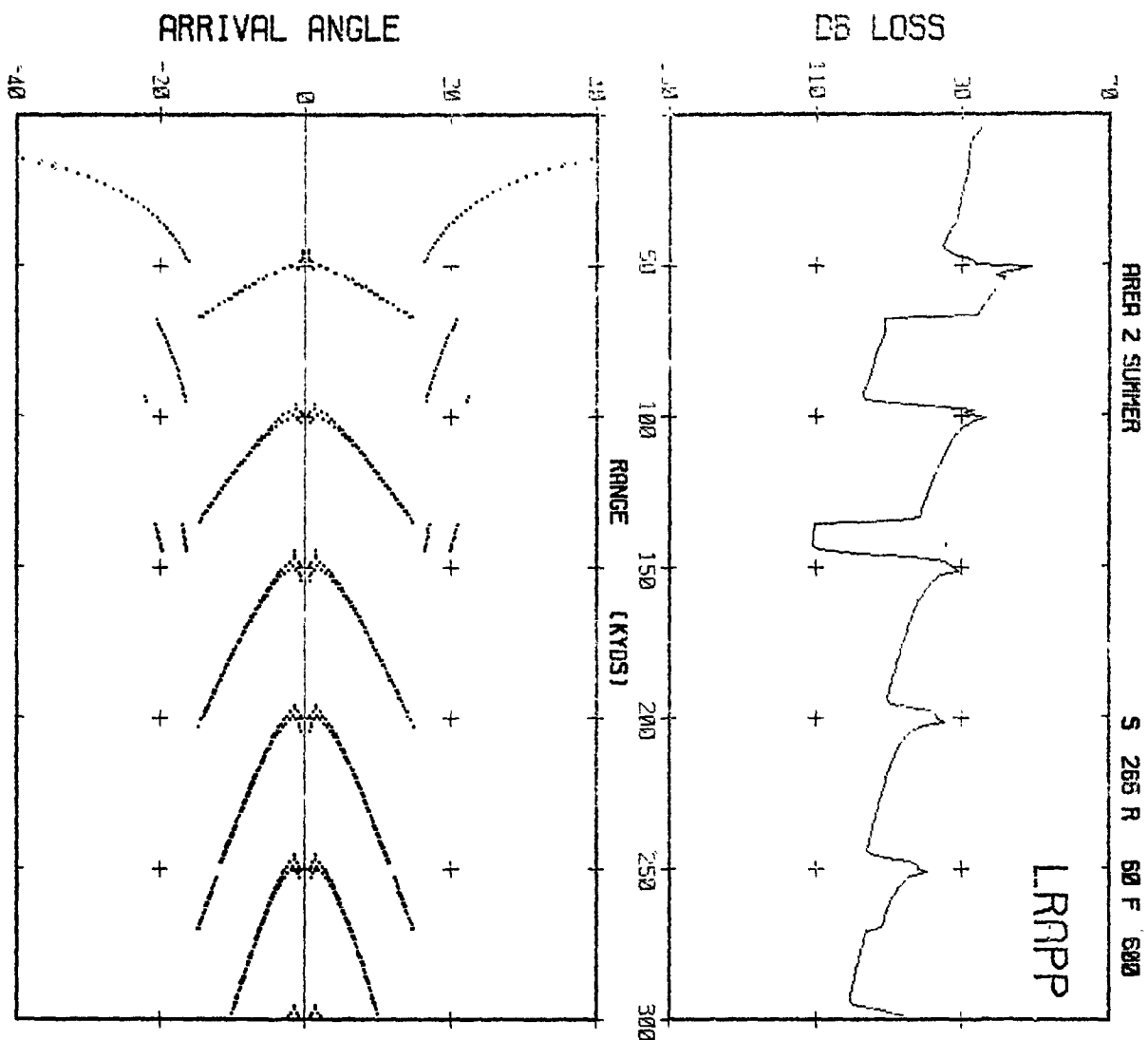










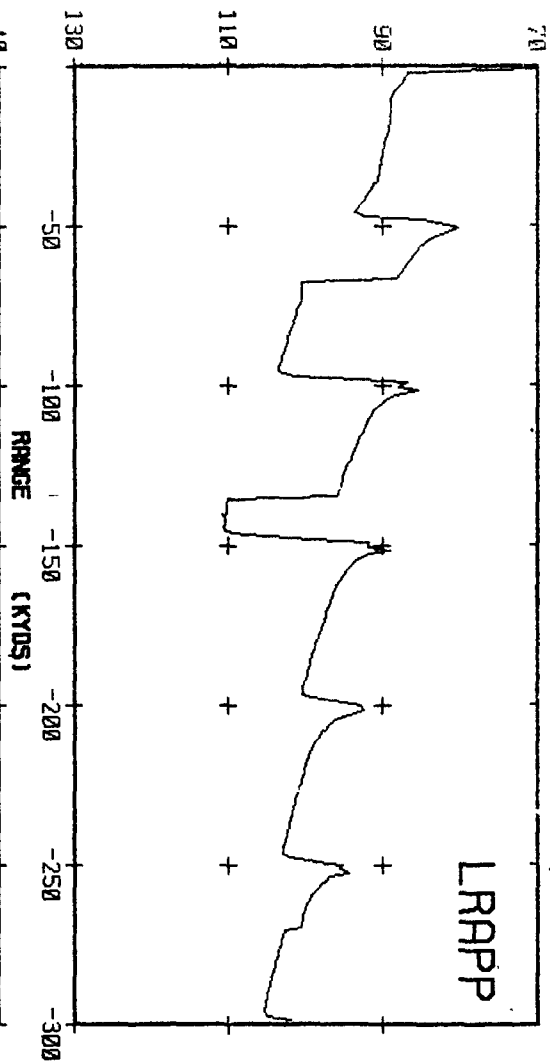


AREA 2 SUMMER

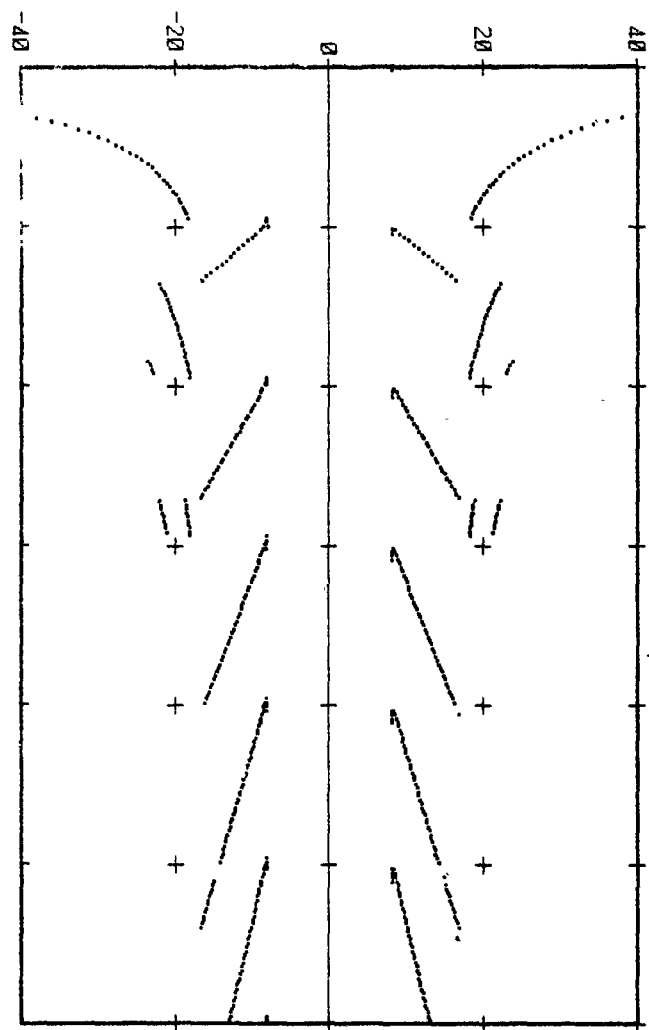
S 20 R 165 F 600

LRAPP

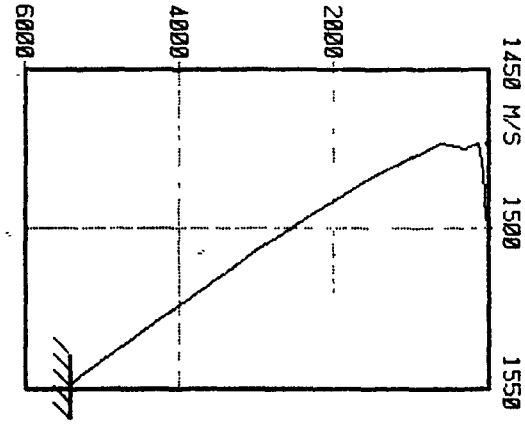
DB LOSS



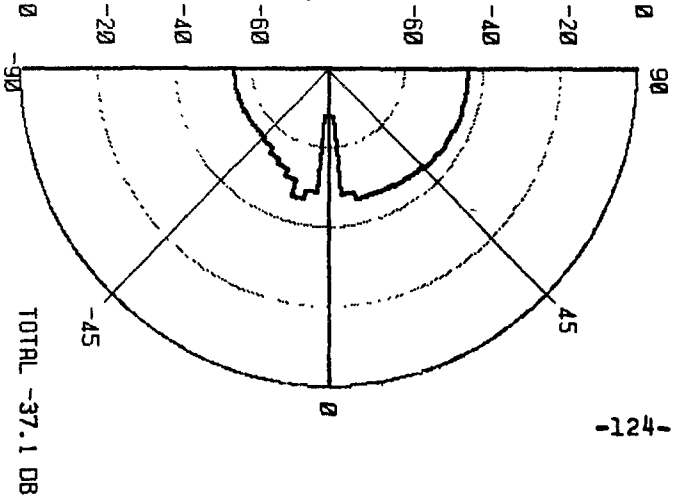
ARRIVAL ANGLE



DEPTH IN METERS



NOISE (DB)



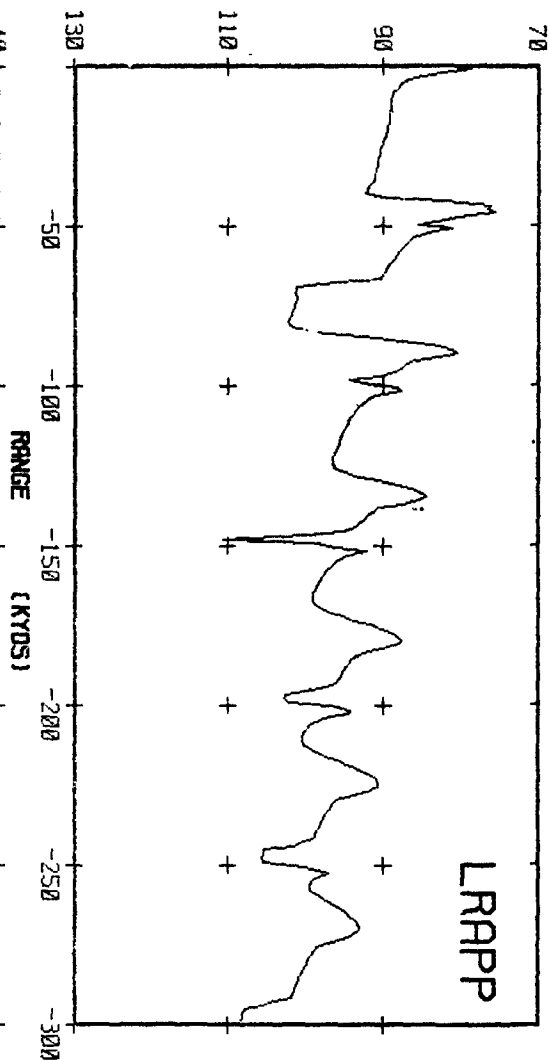


AREA 2 SUMMER

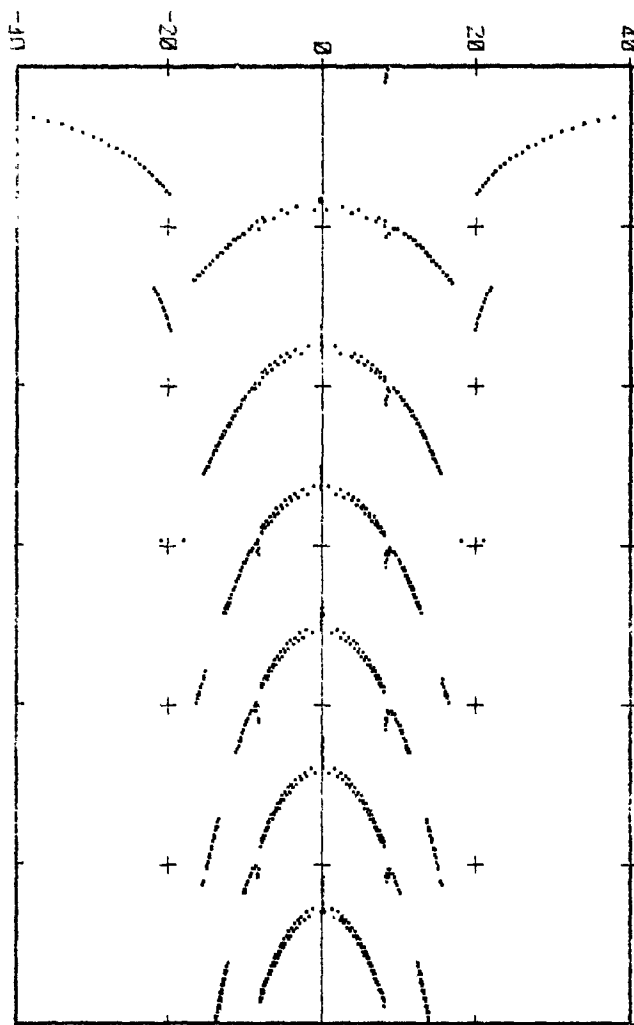
S 266 R 166 F 600

1450 M/S 1500 1550

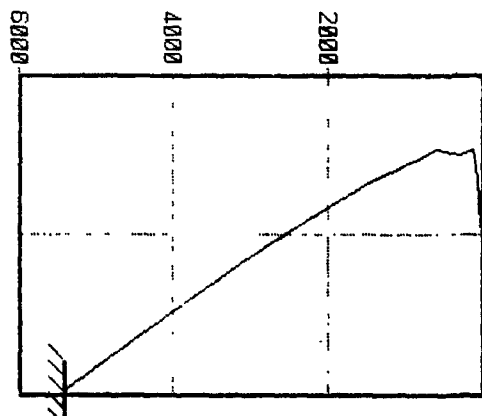
DB LOSS



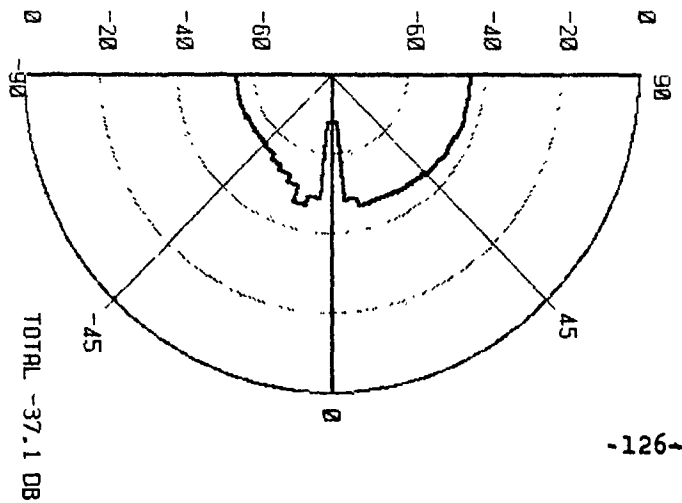
ARRIVAL ANGLE



DEPTH IN METERS



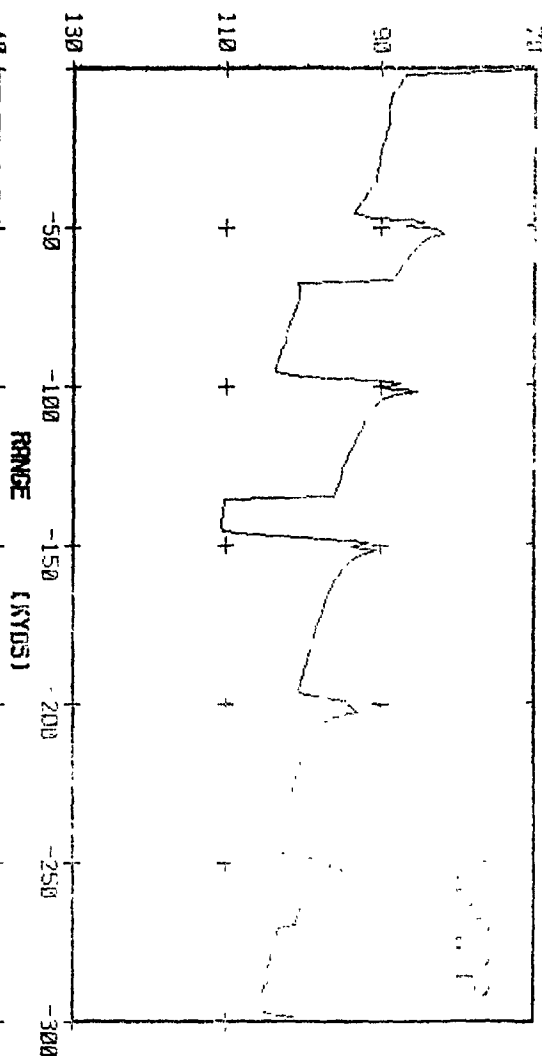
NOISE (DB)



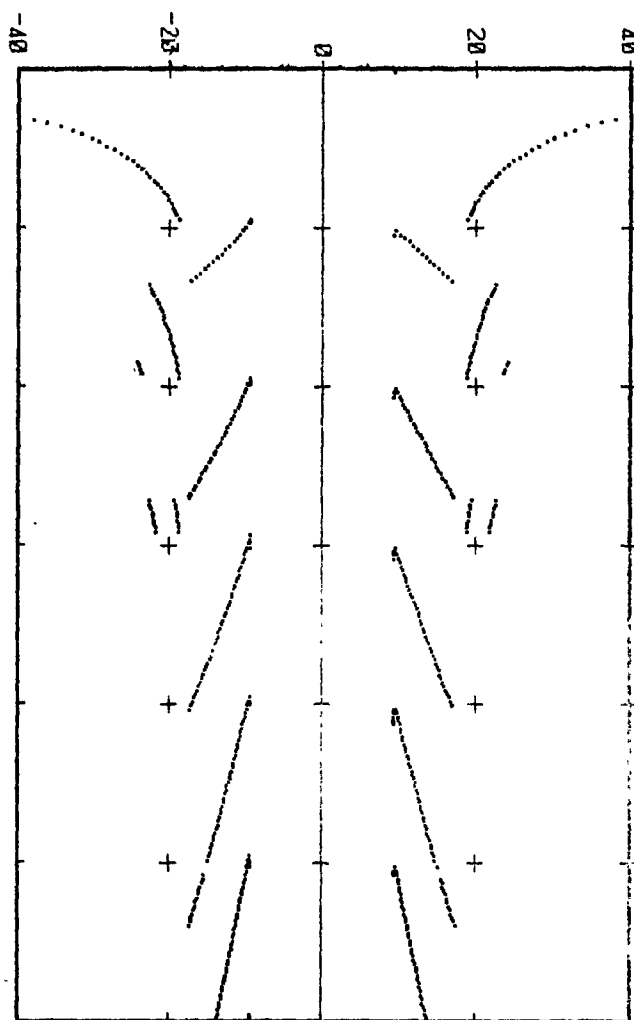
PIPER 2 SUMMER

S. 50. 5. 1. 1. 1.

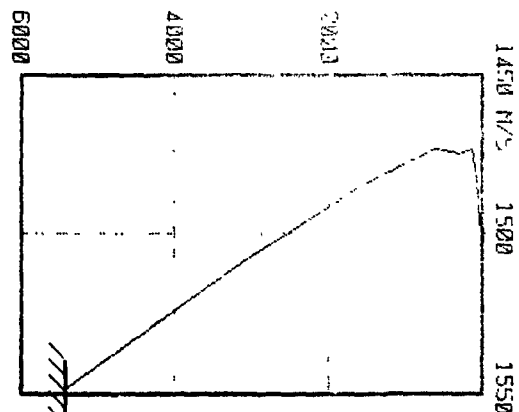
DB LOSS



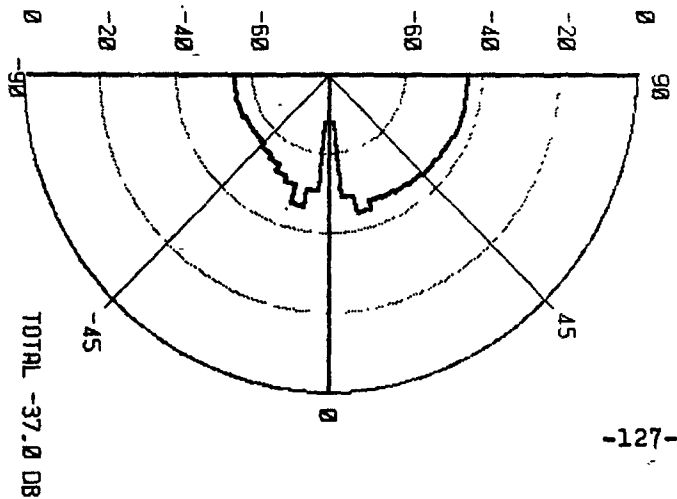
ARRIVAL ANGLE



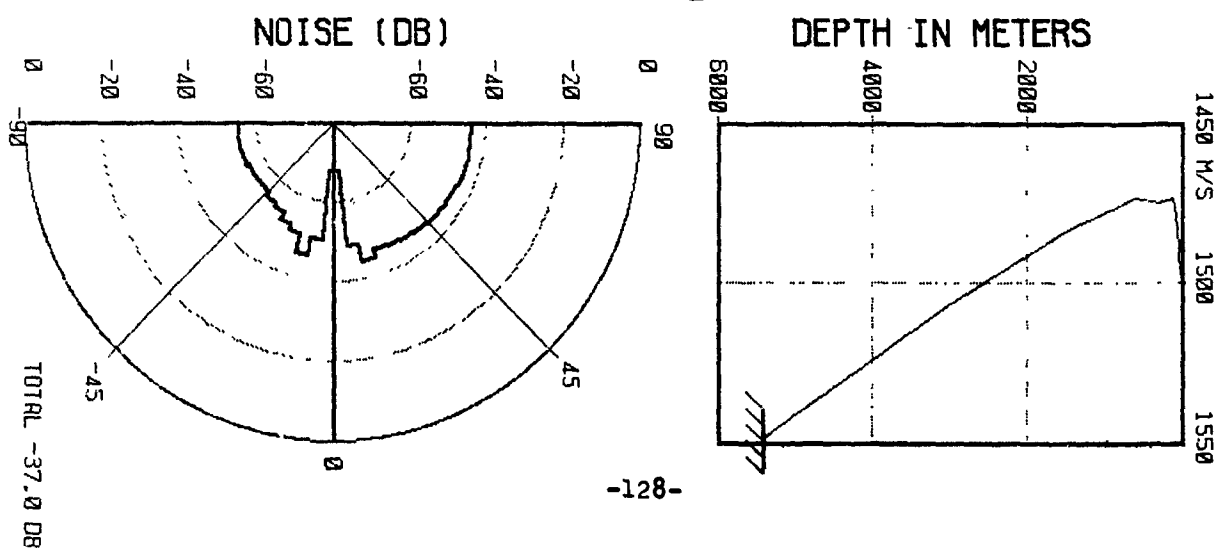
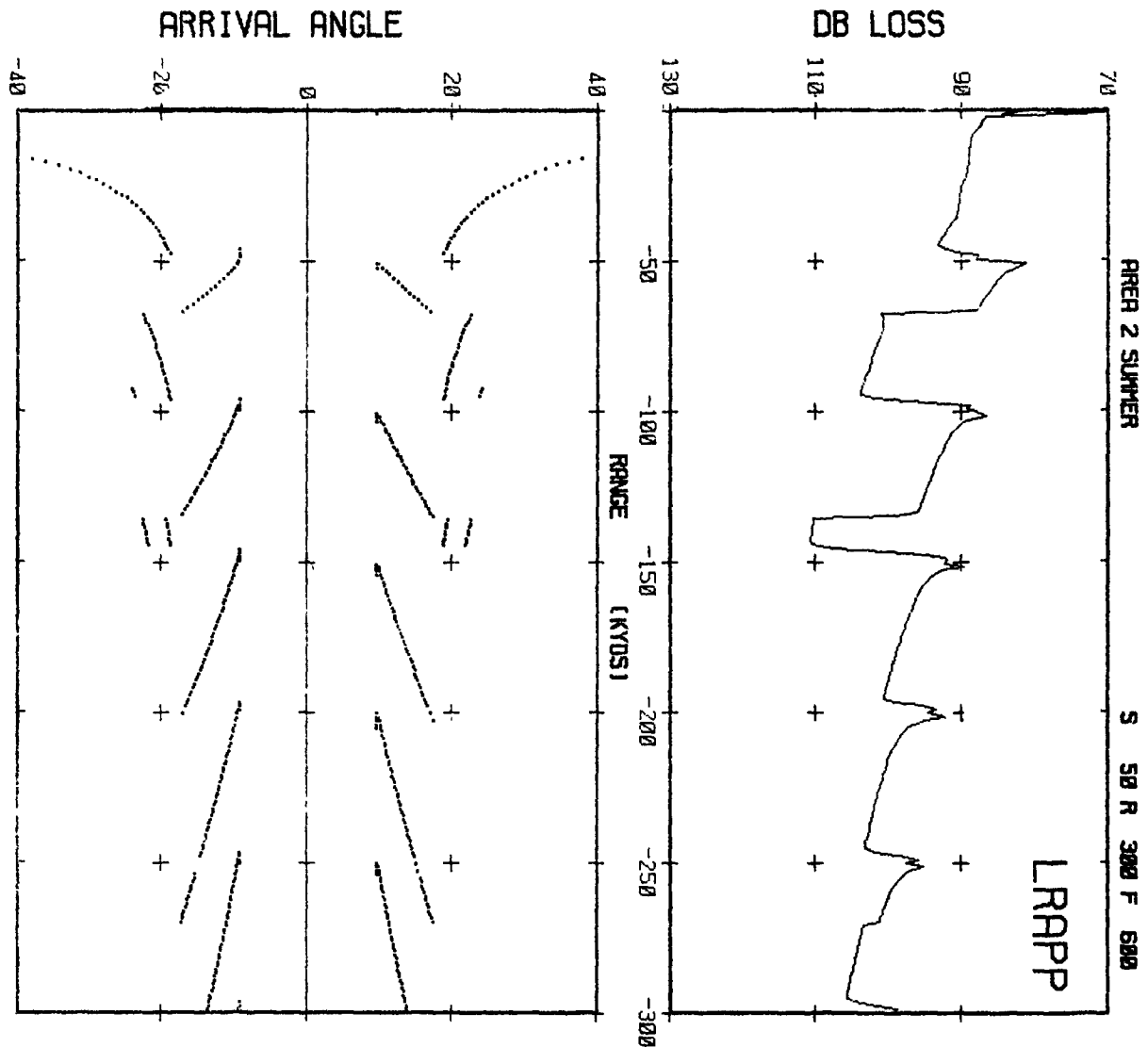
DEPTH IN METERS

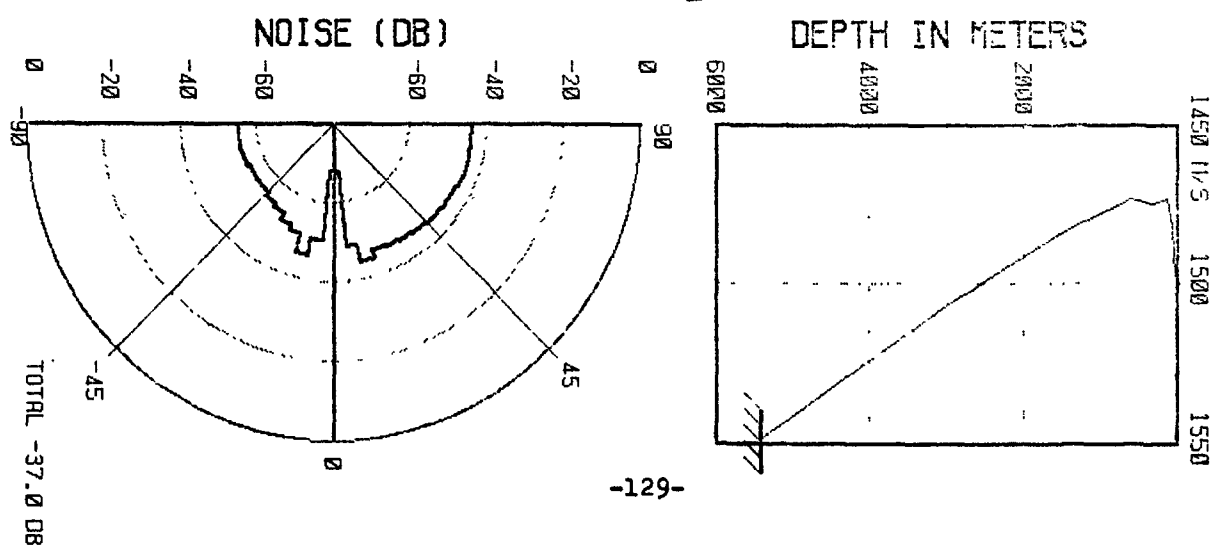
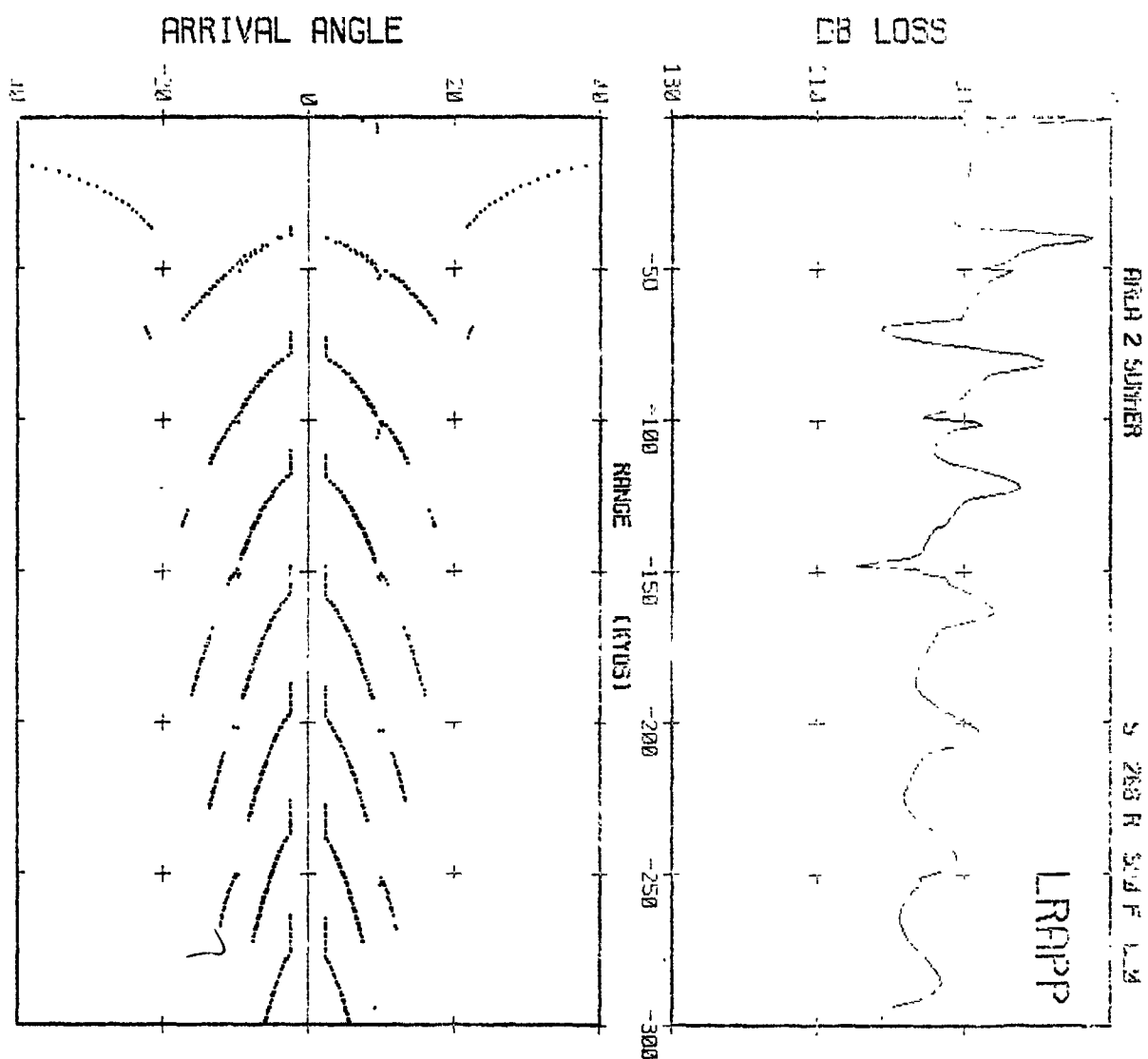


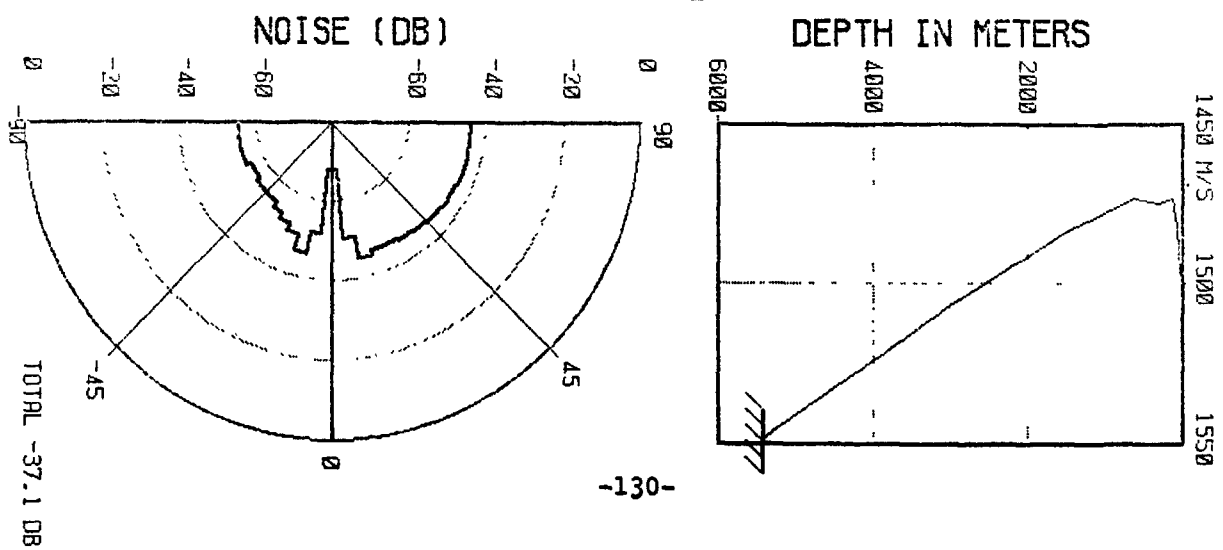
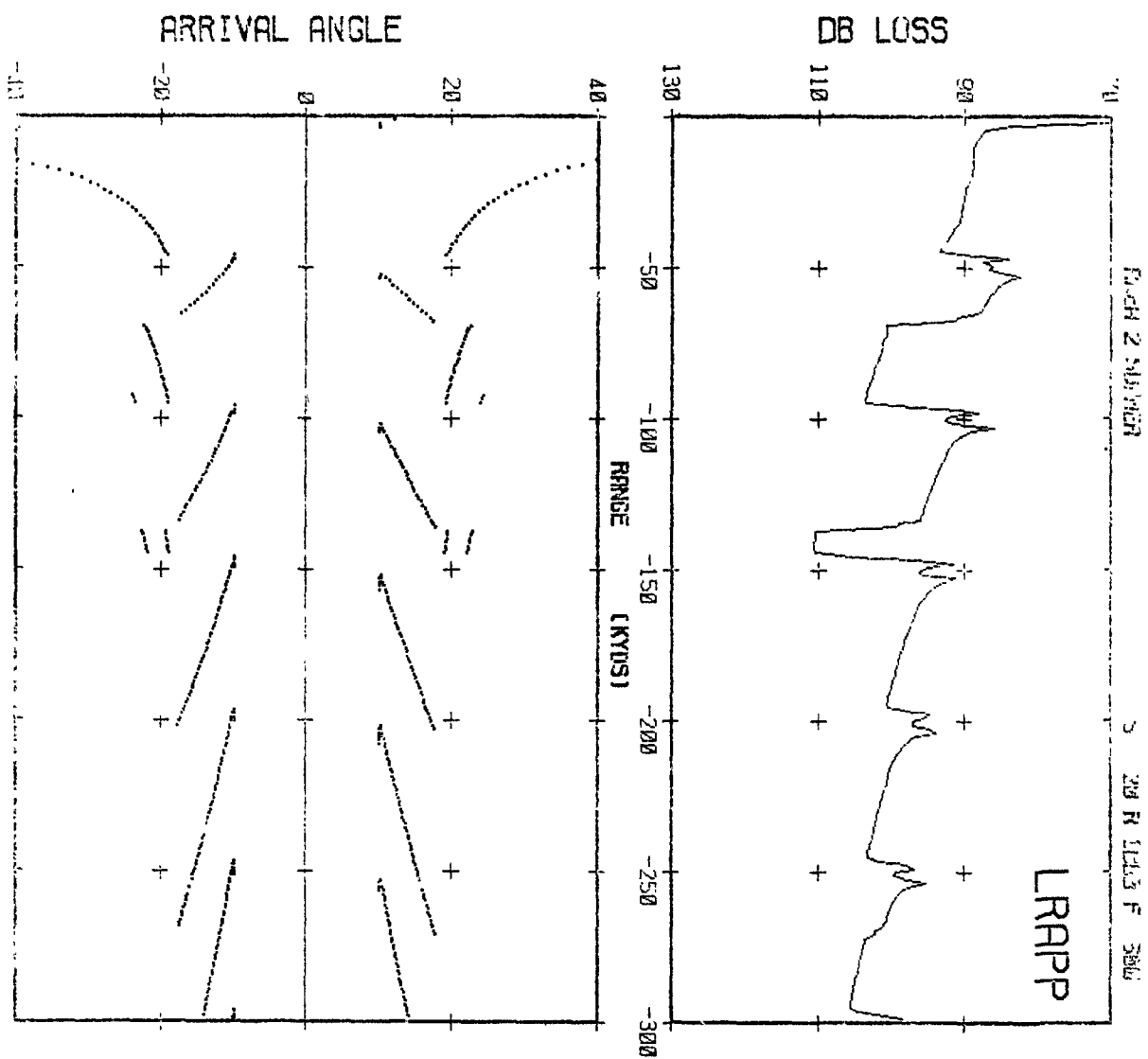
NOISE (DB)











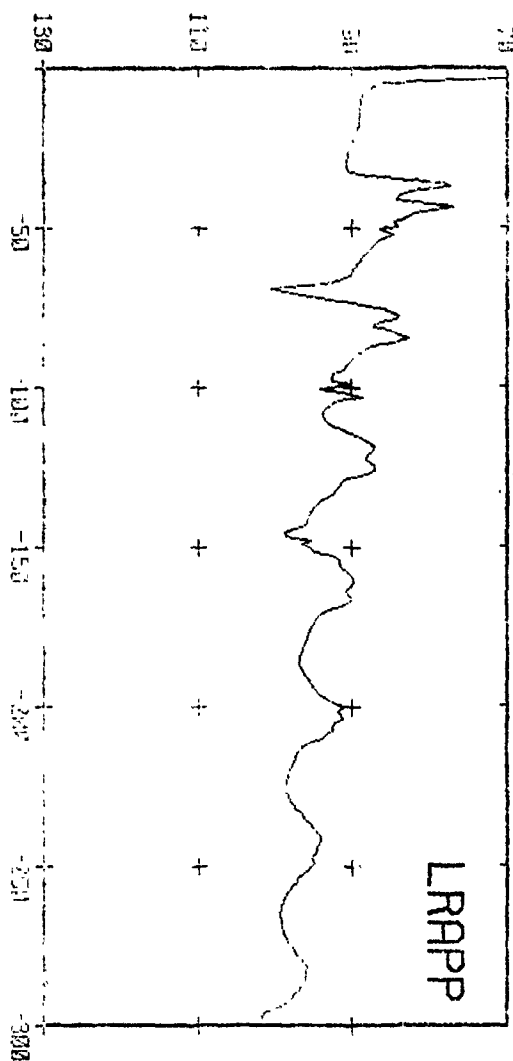


RRP 2 SURTHER

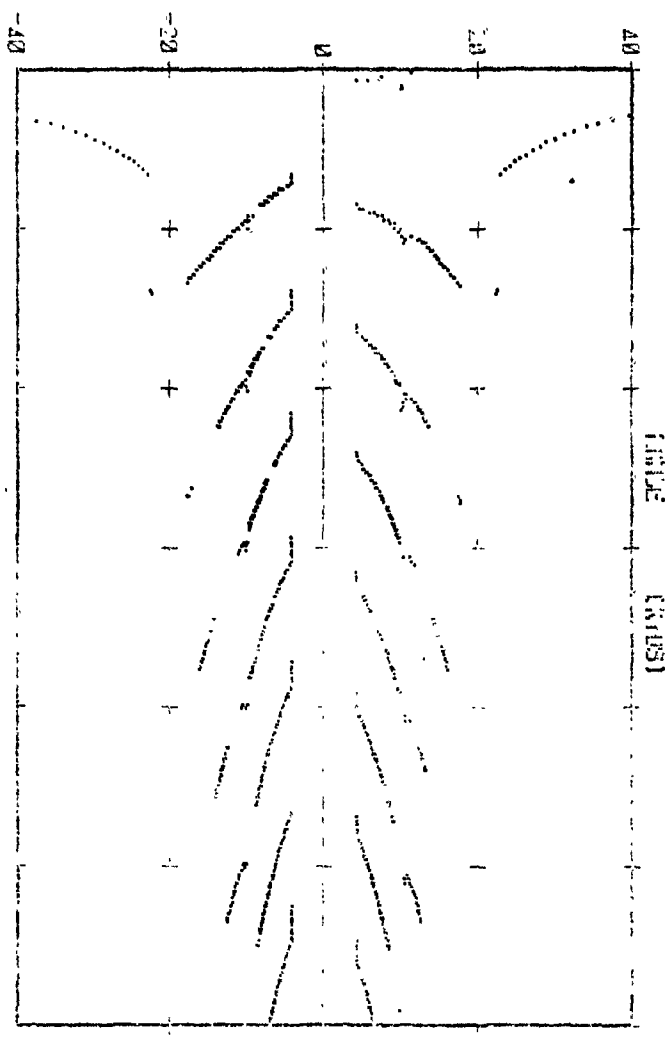
S 266 R 1000 F 600

1450 M/S 1500 1550

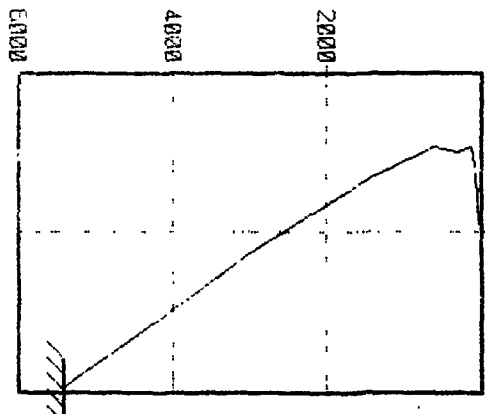
DB LOSS



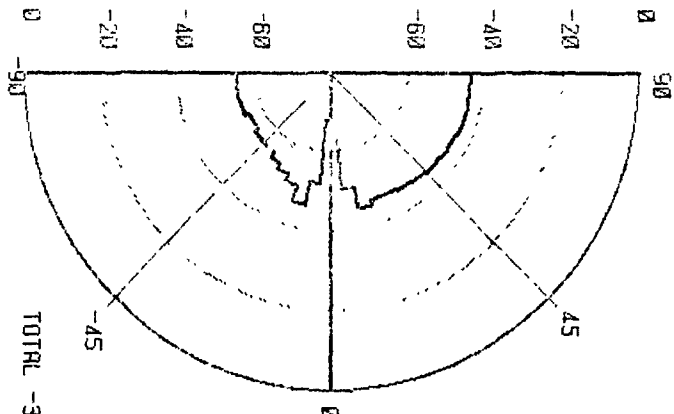
ARRIVAL ANGLE



DEPTH IN METERS



NOISE (dB)

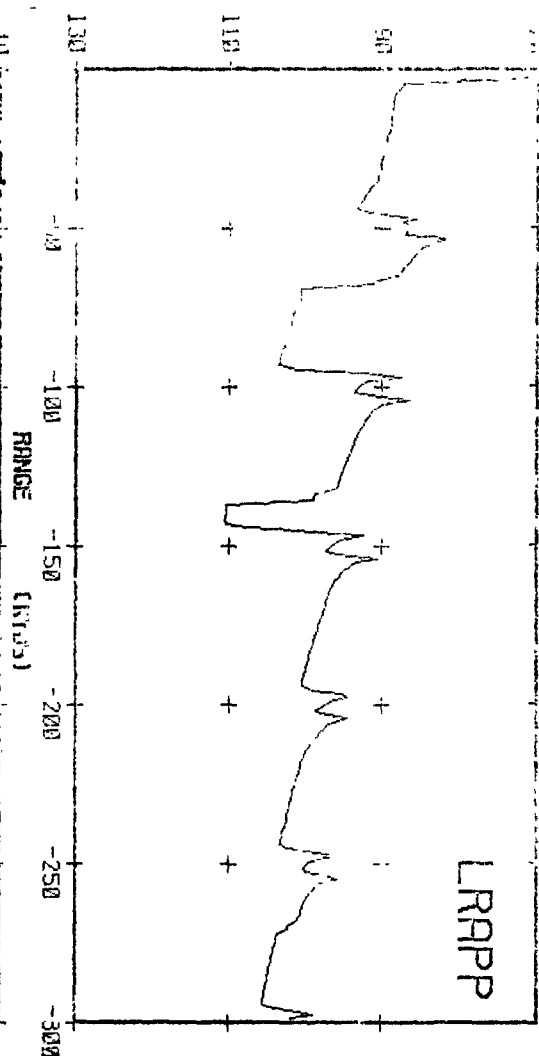


AREA 2 SUMMER

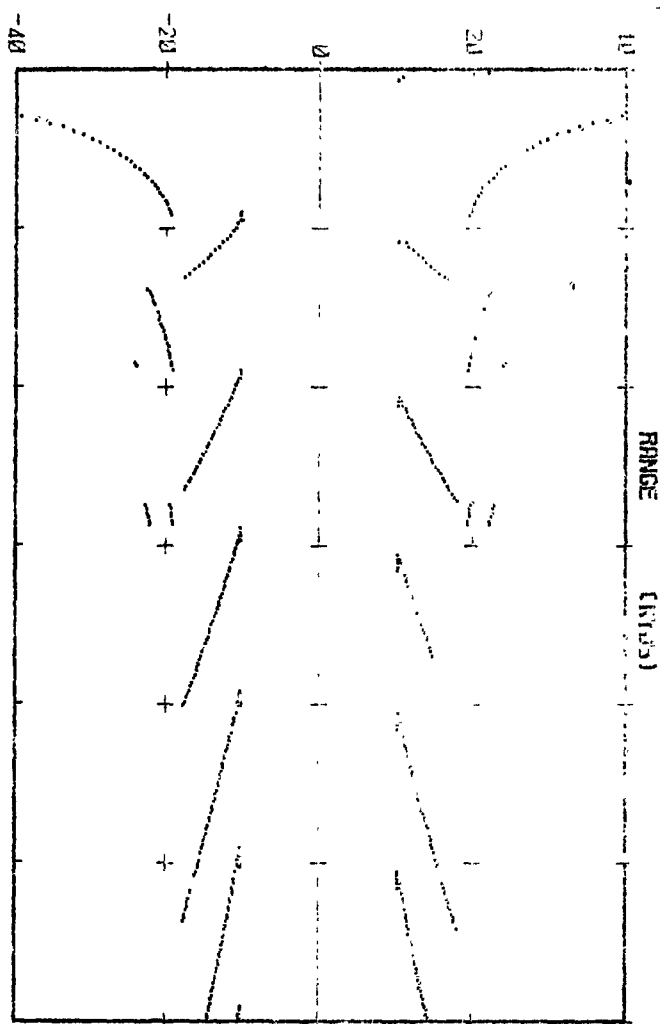
S 20 R 1502 F 600

1450 M/S 1500 1510

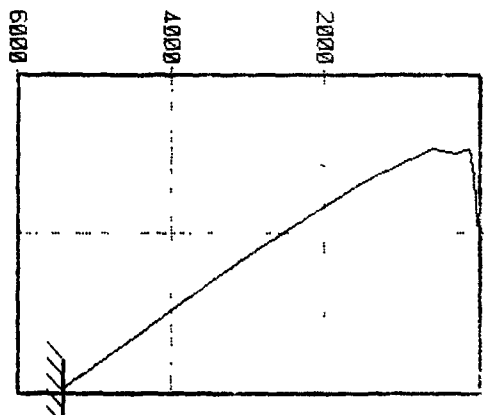
DB LOSS



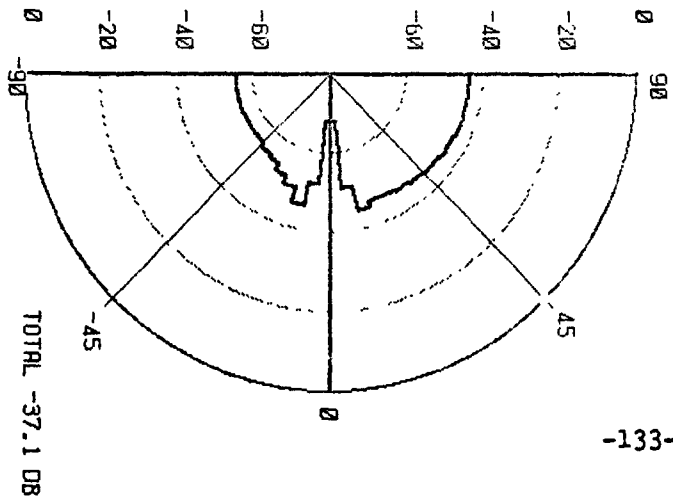
ARRIVAL ANGLE

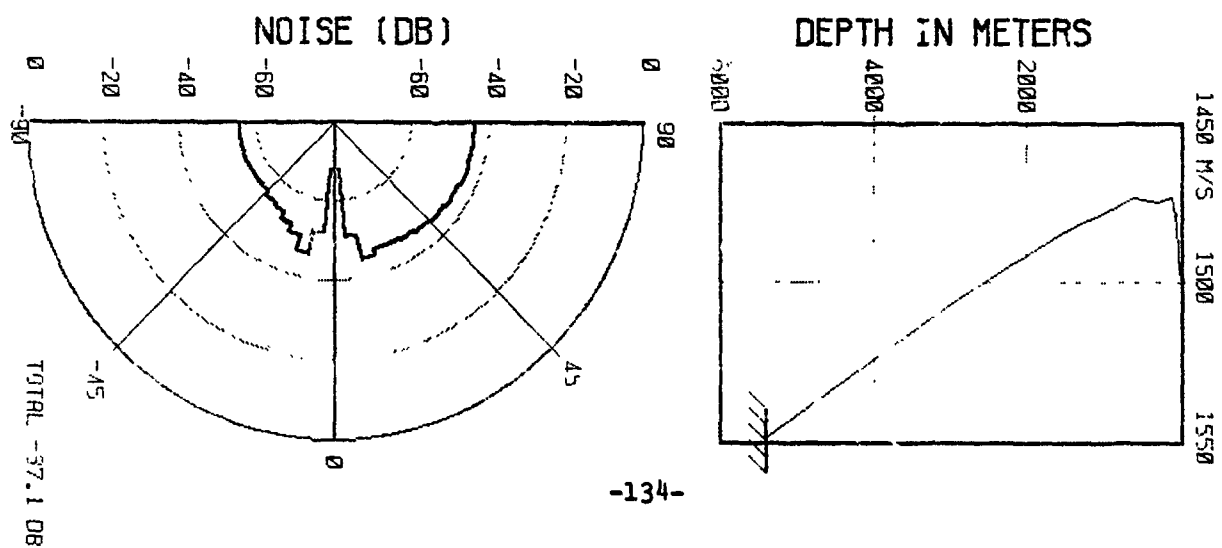
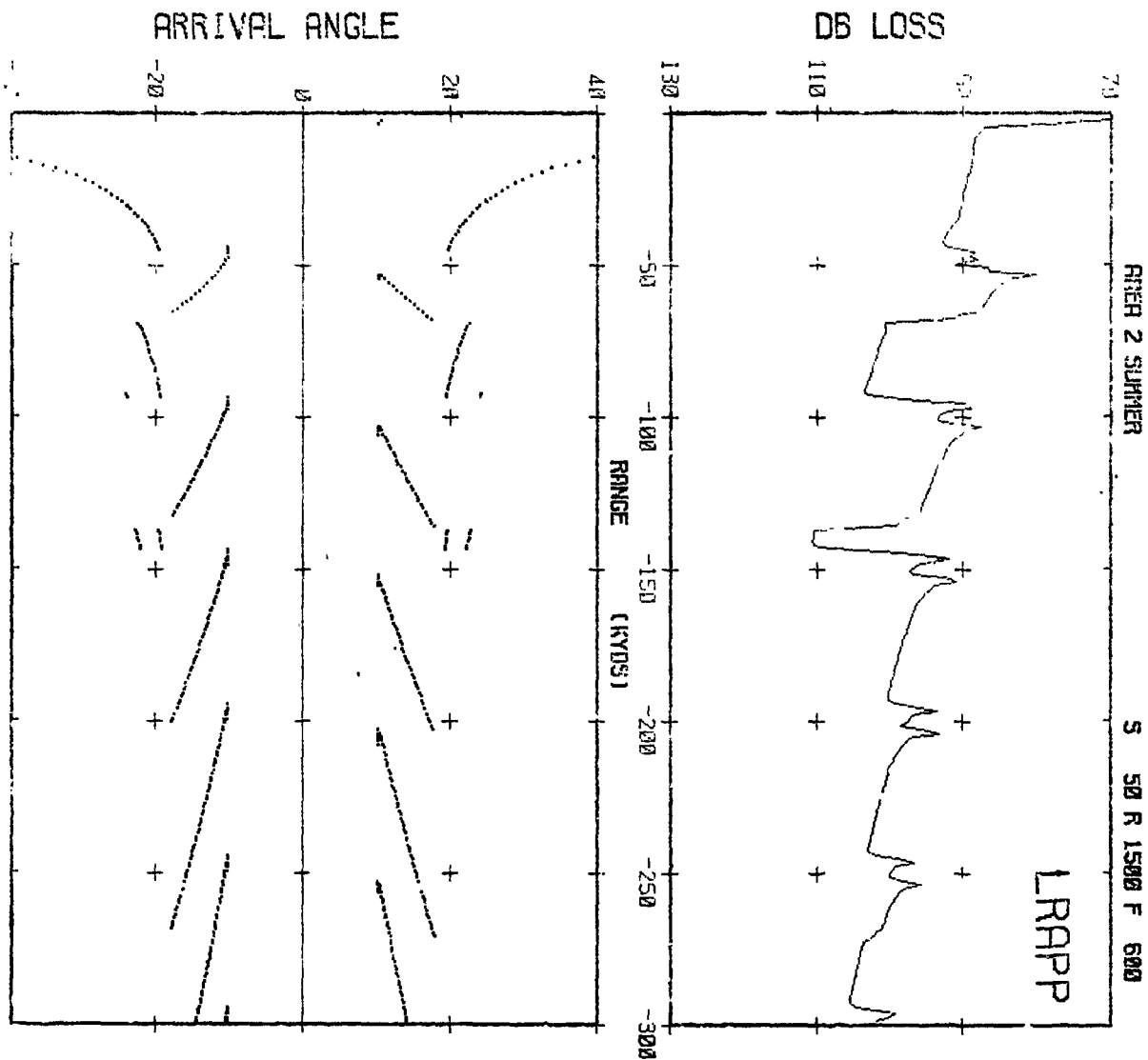


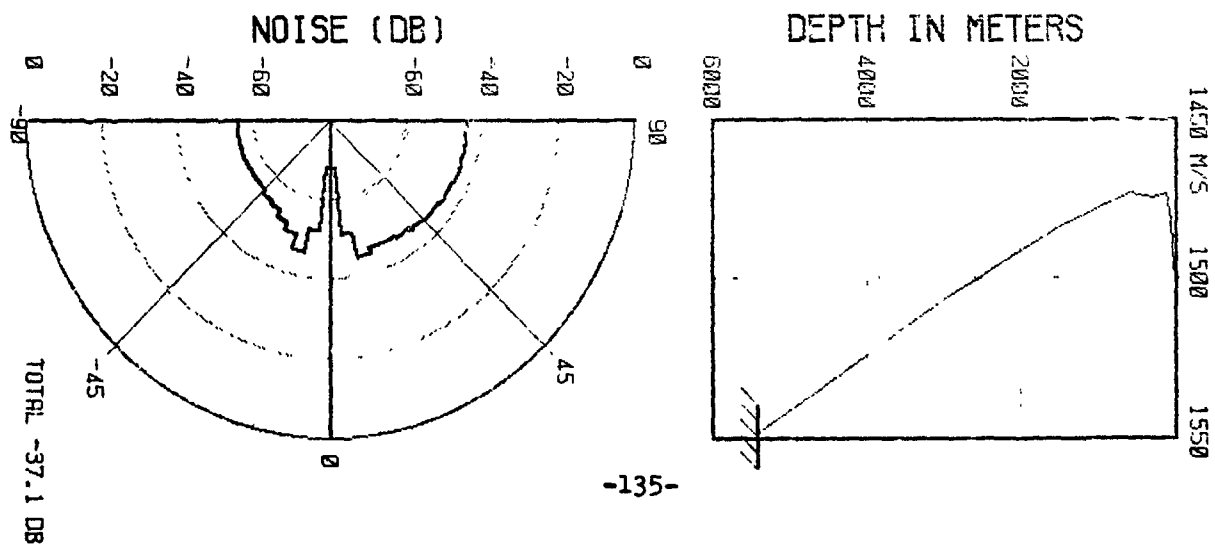
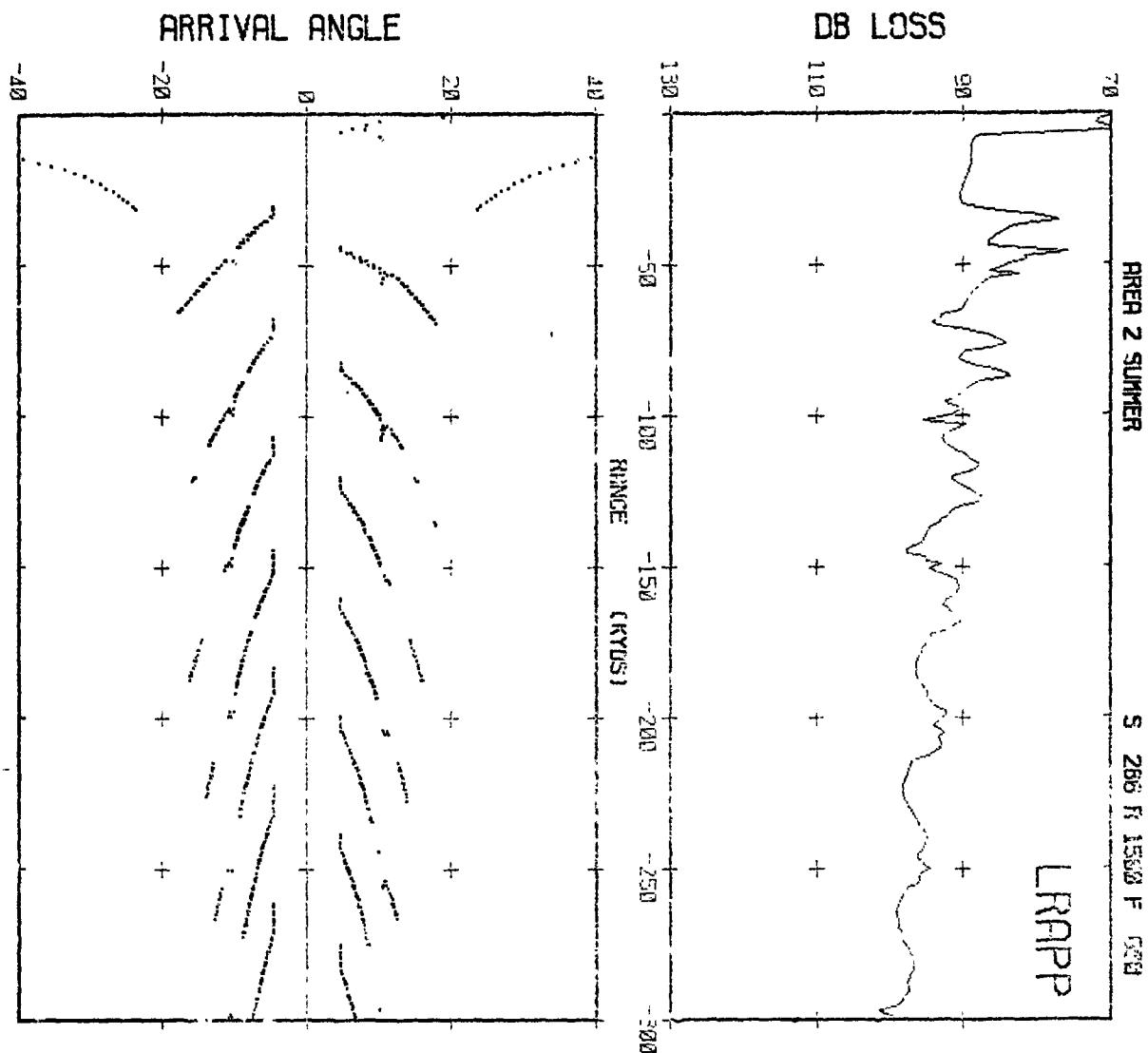
DEPTH IN METERS



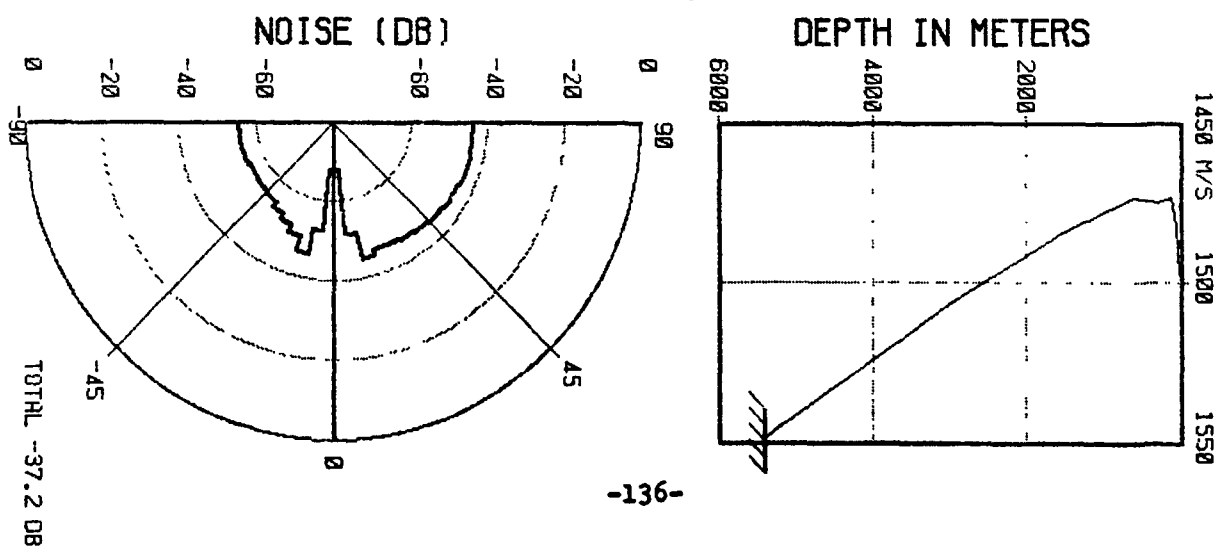
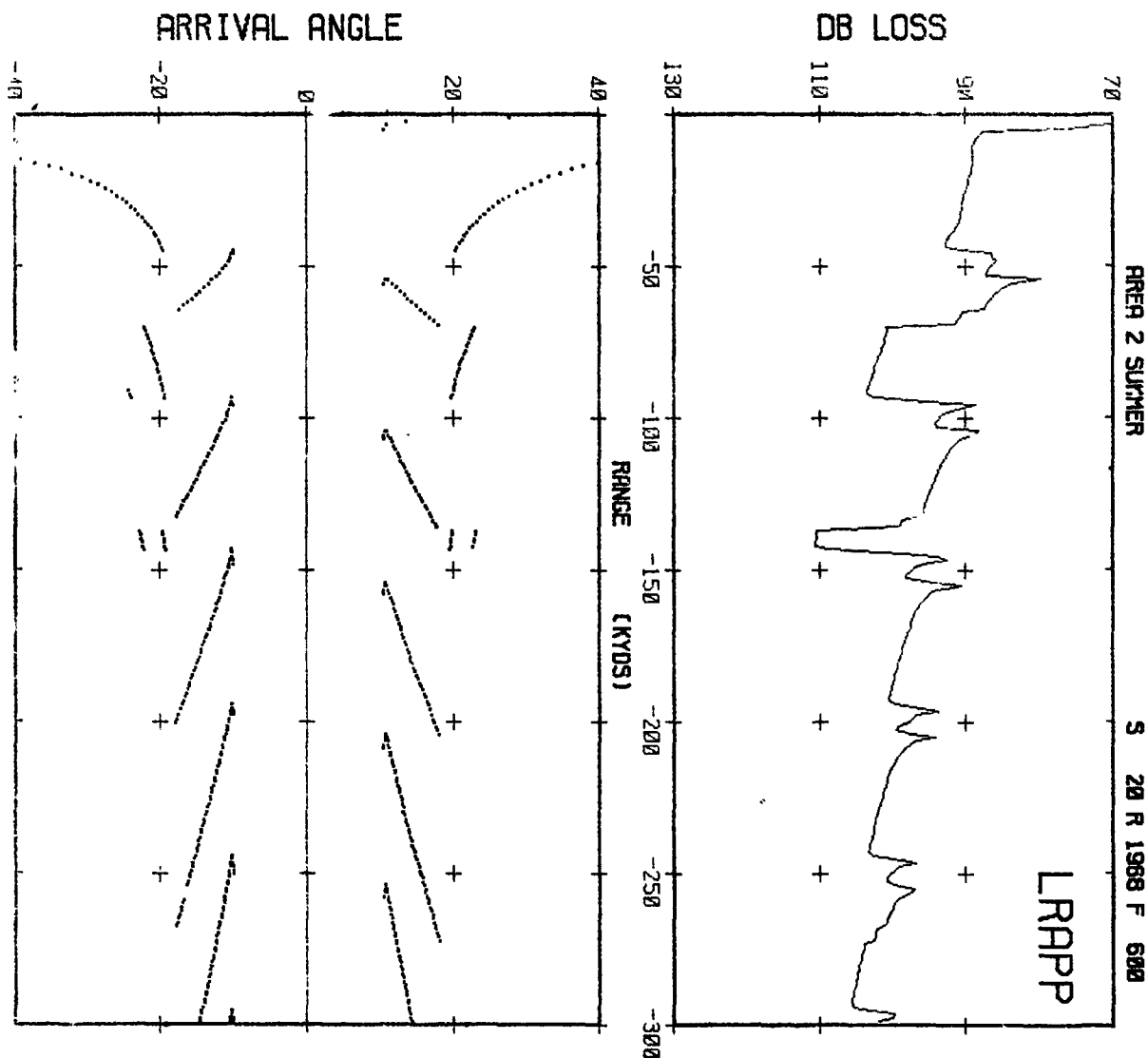
NOISE (DB)

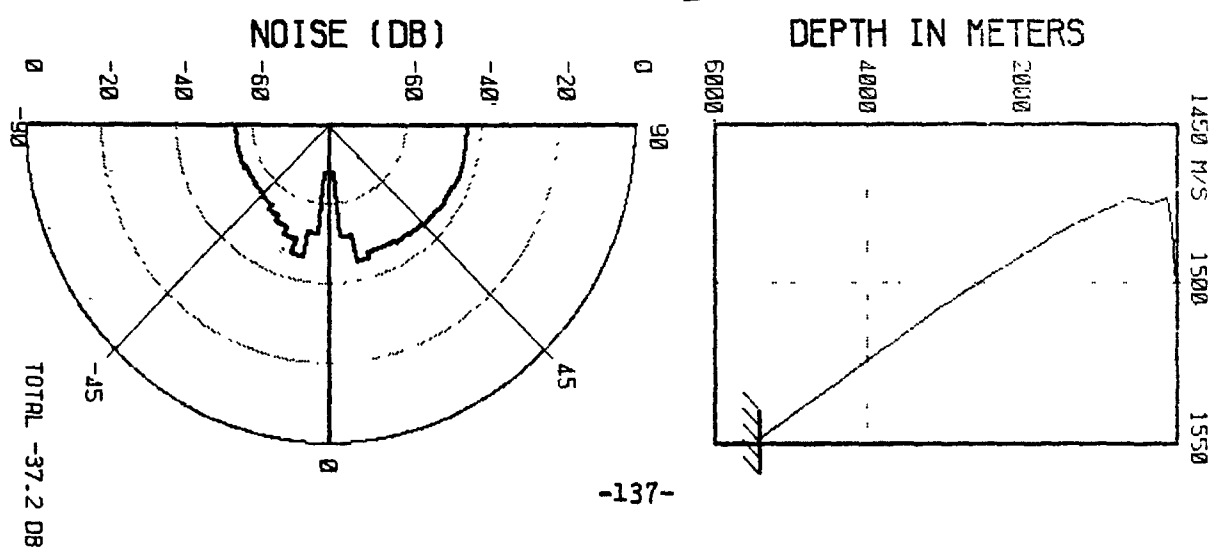
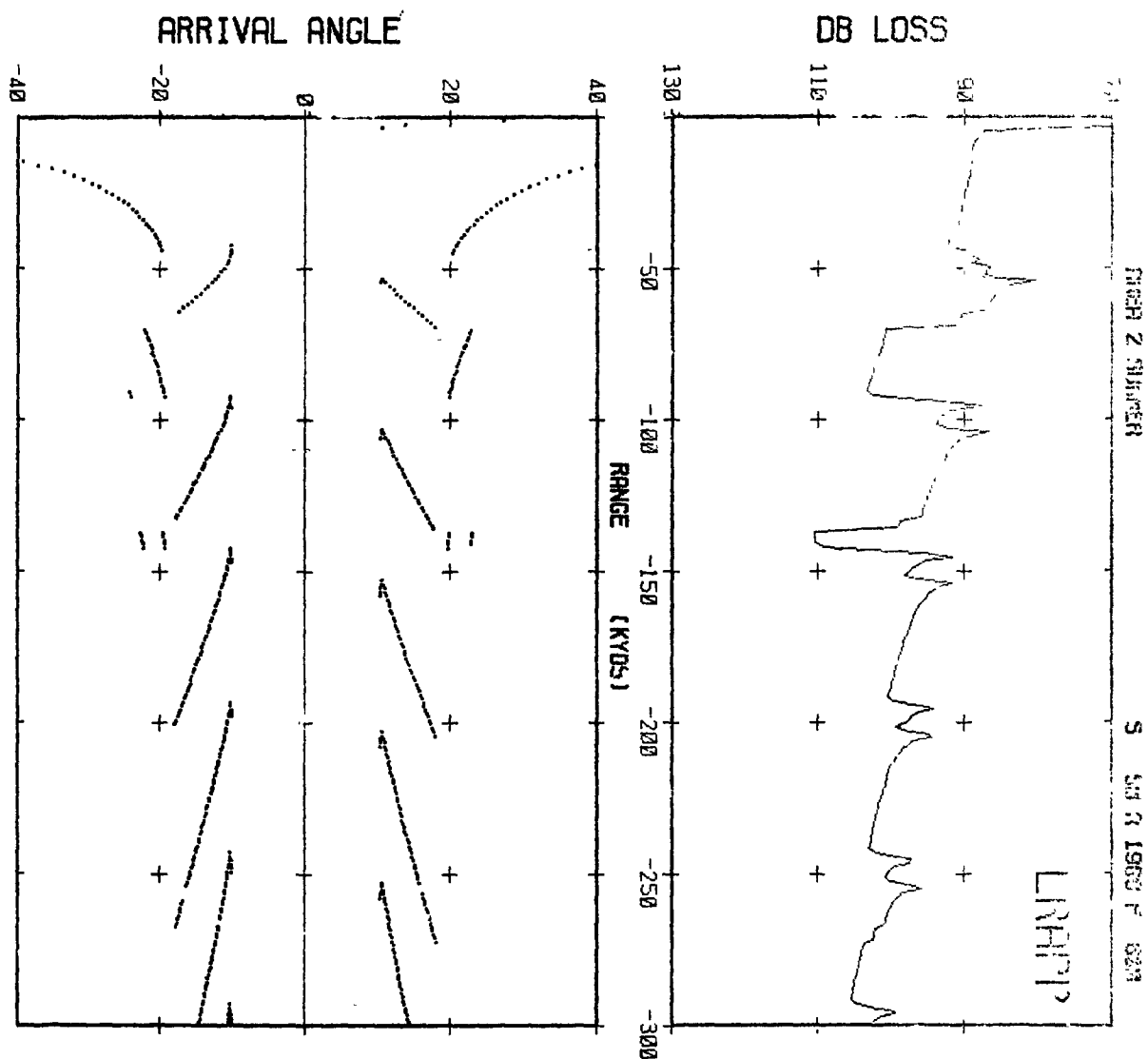










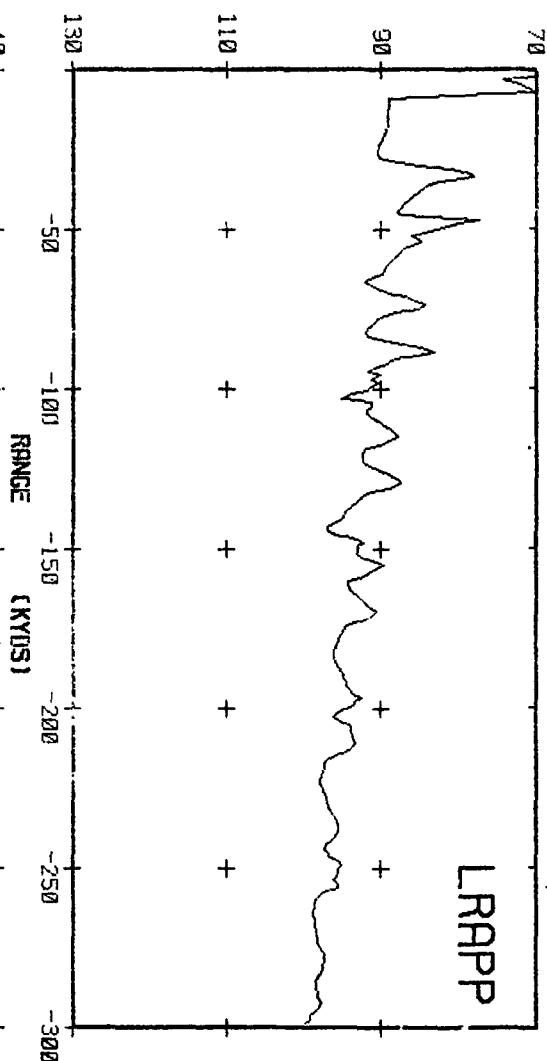


AREA 2 SUMMER

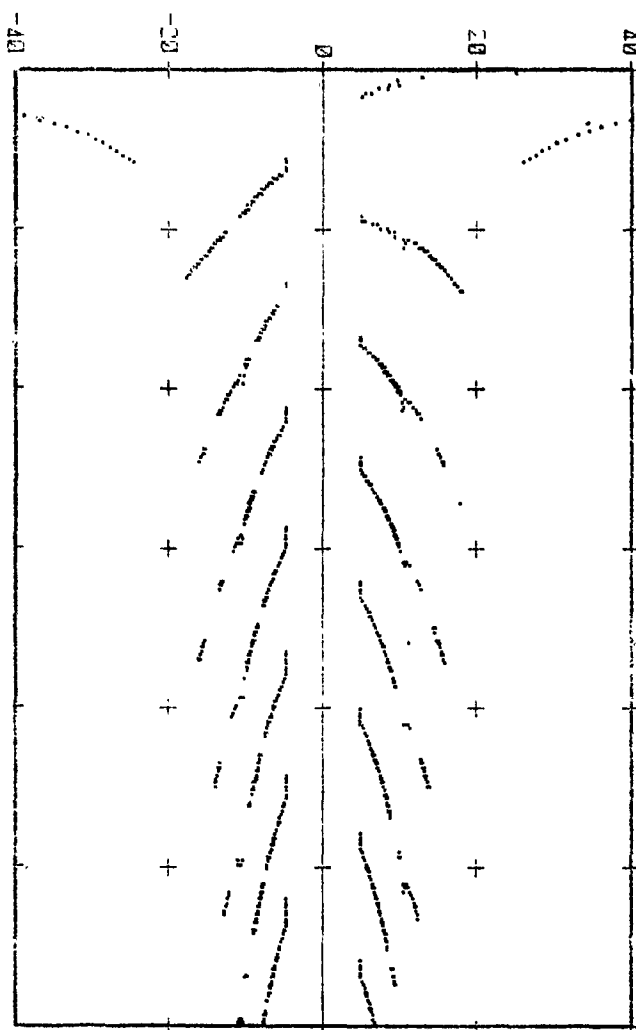
S 266 R 1988 F 600

LRAPP

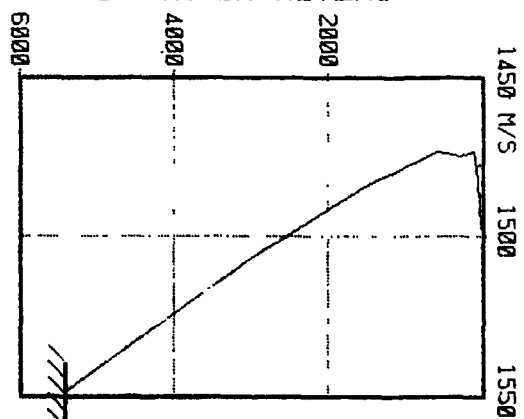
DB LOSS



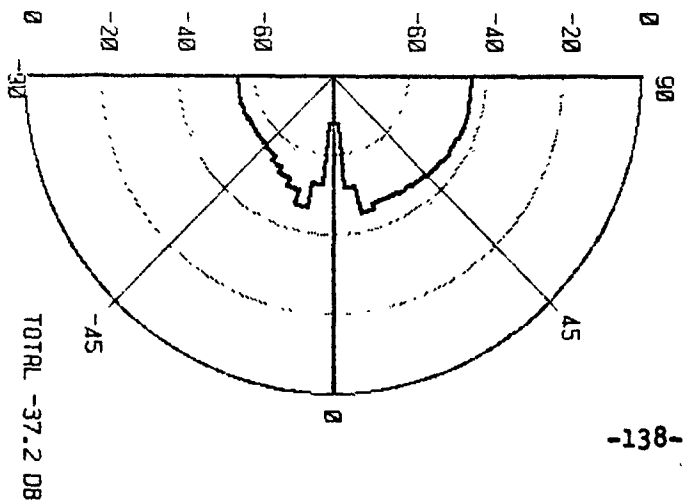
ARRIVAL ANGLE



DEPTH IN METERS



NOISE (DB)

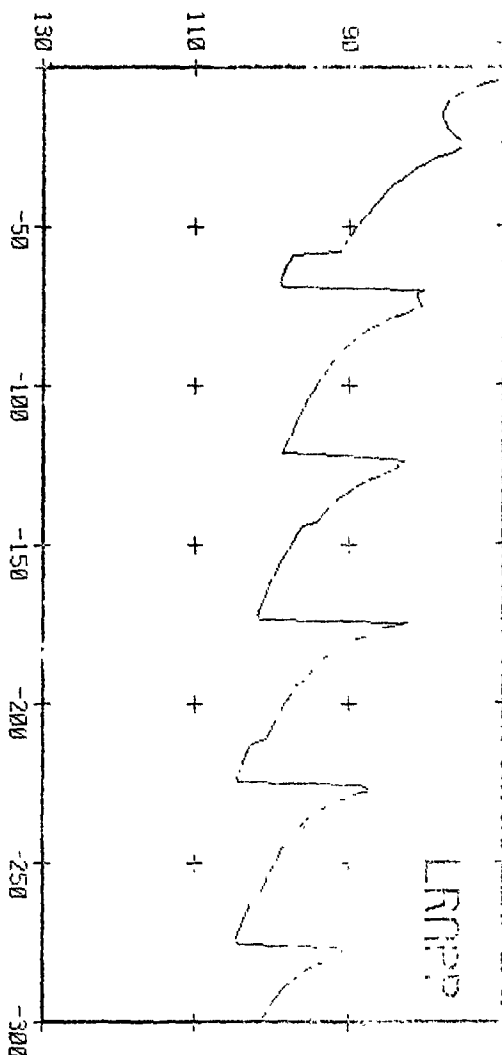


AREA 2 SURFIER

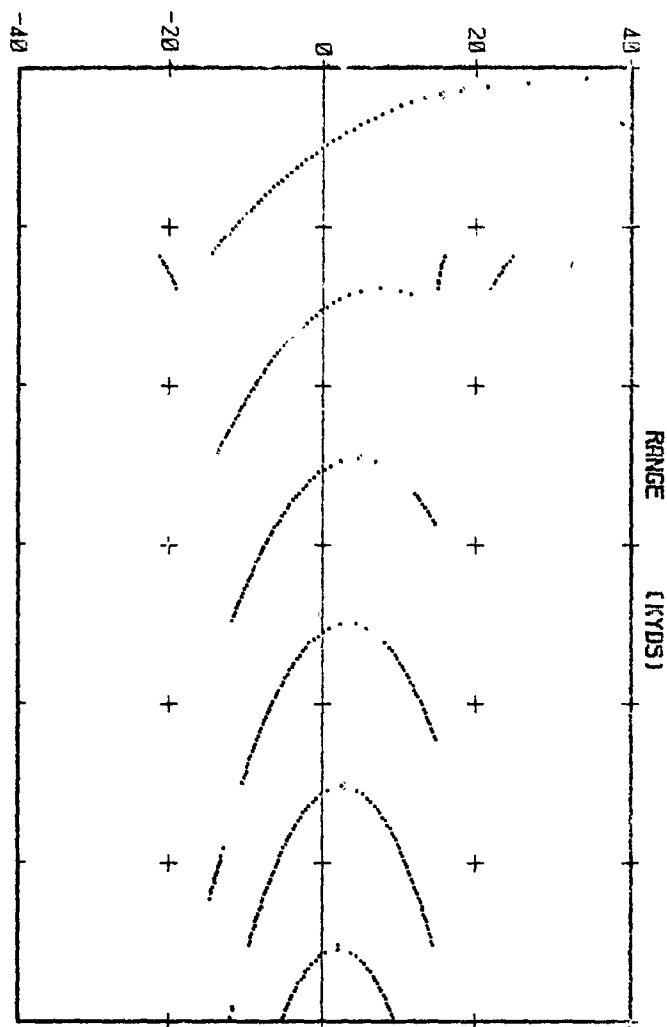
S 21 R 7374 F 616

1450 M/S 1500 1550

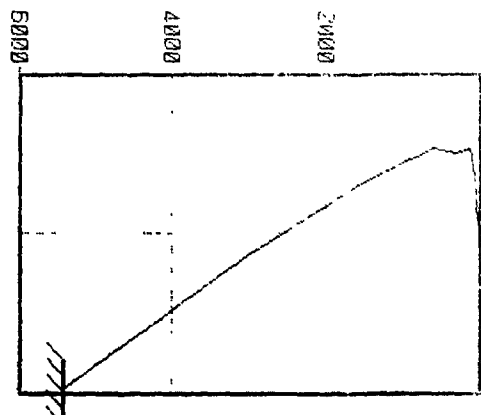
DB LOSS



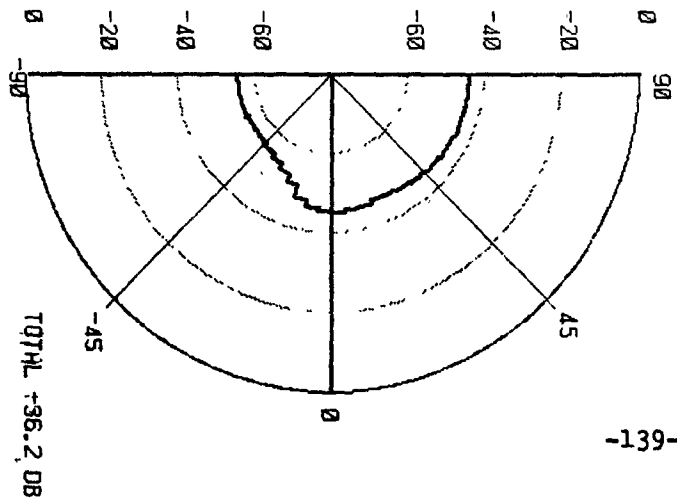
ARRIVAL ANGLE

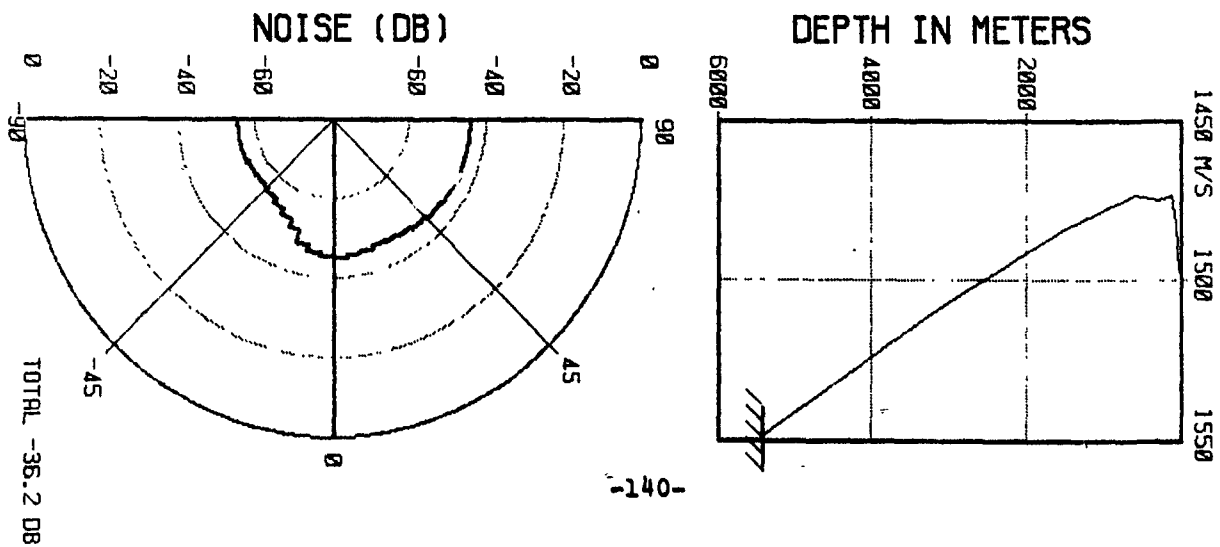
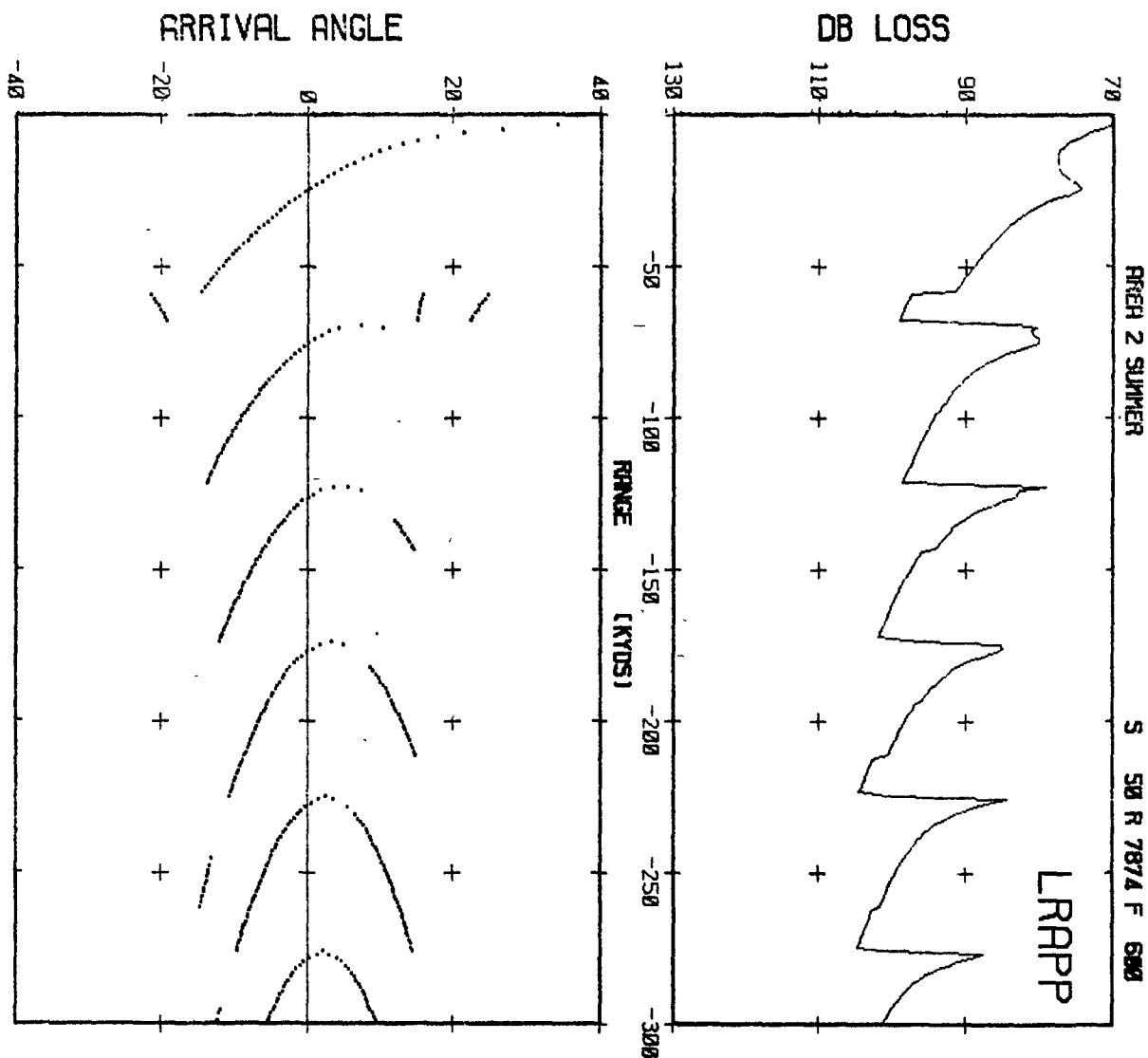


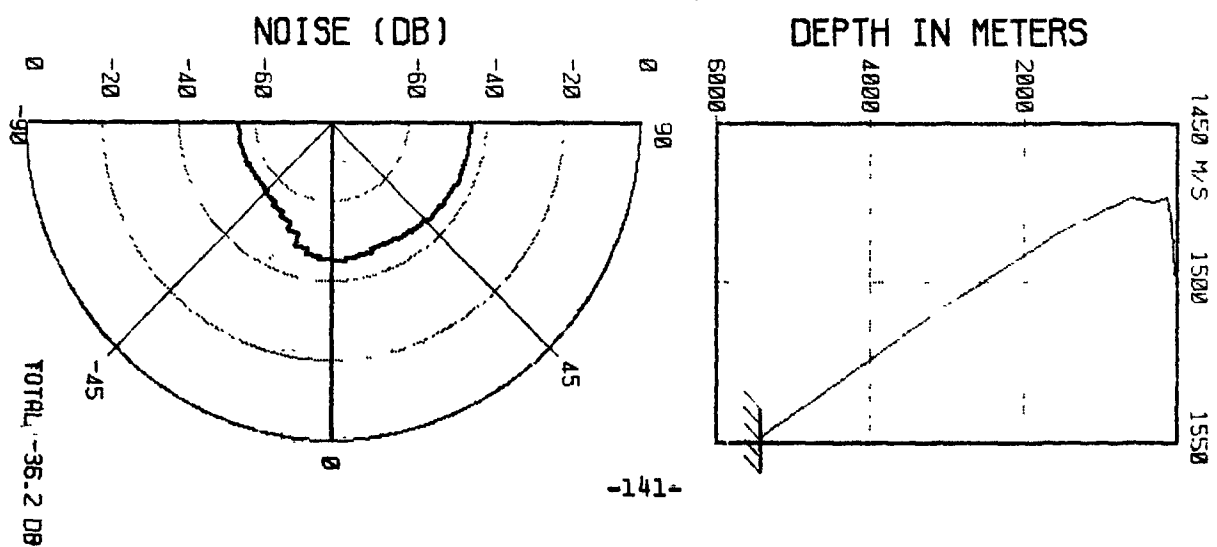
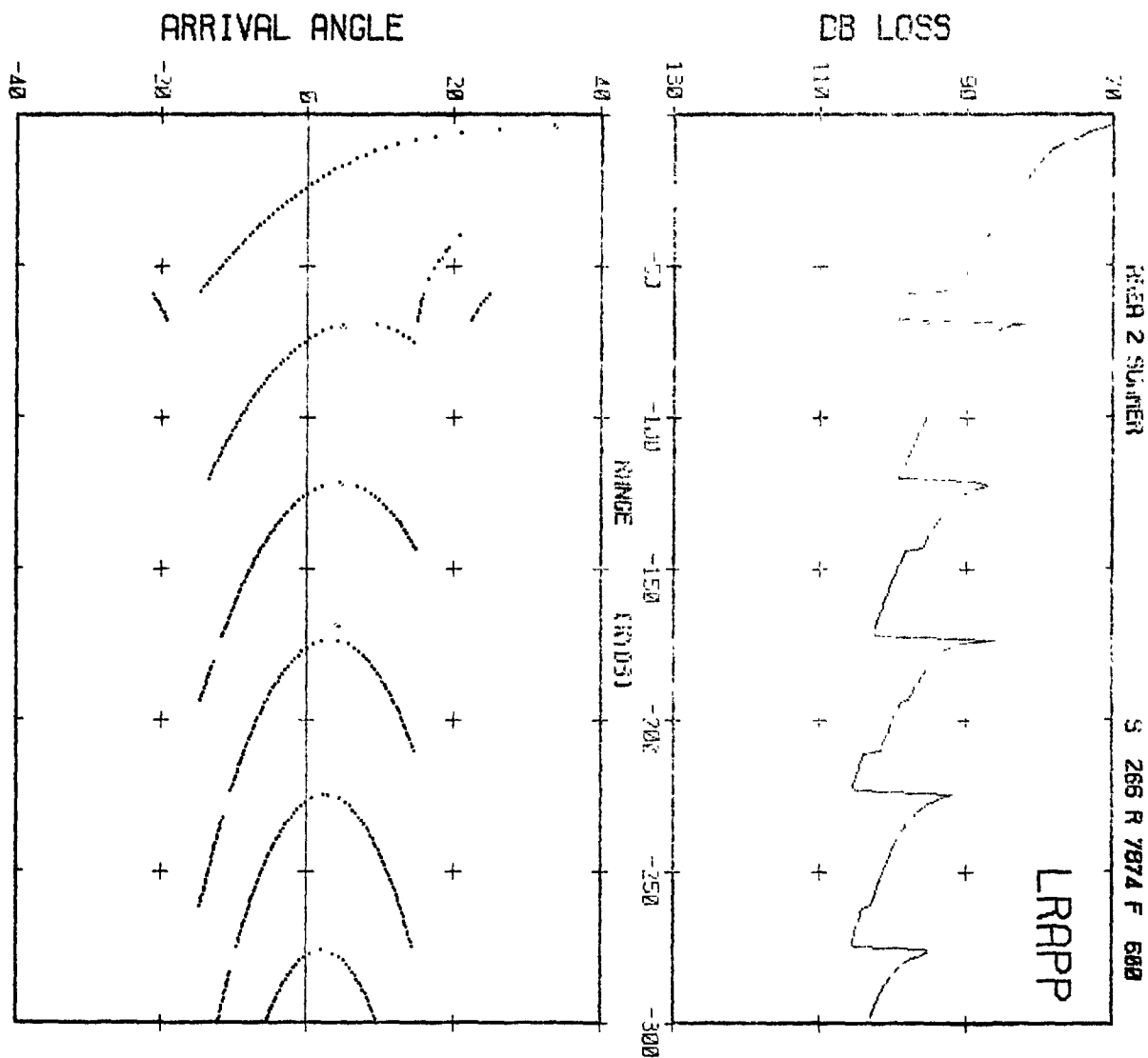
DEPTH IN METERS



NOISE (DB)







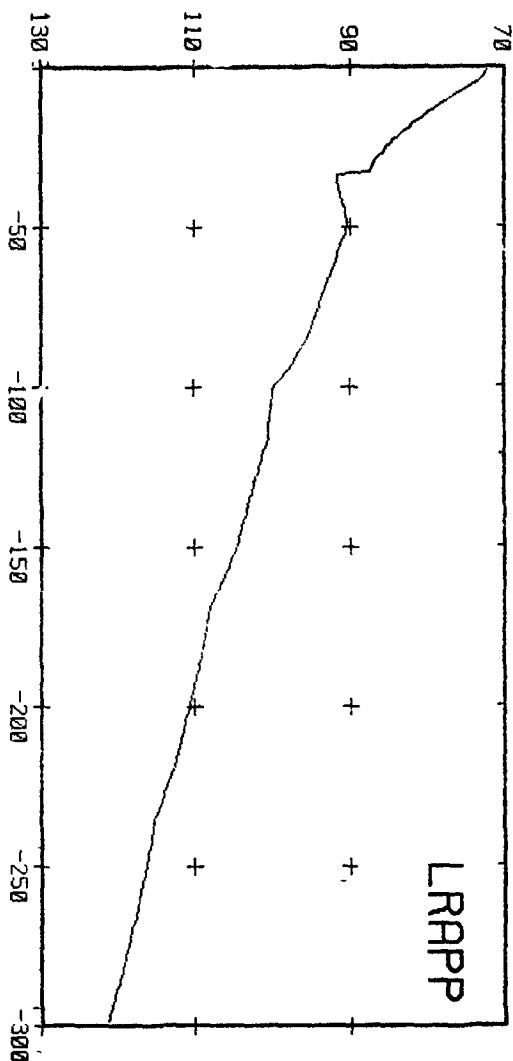
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AREA 2 SUMMER

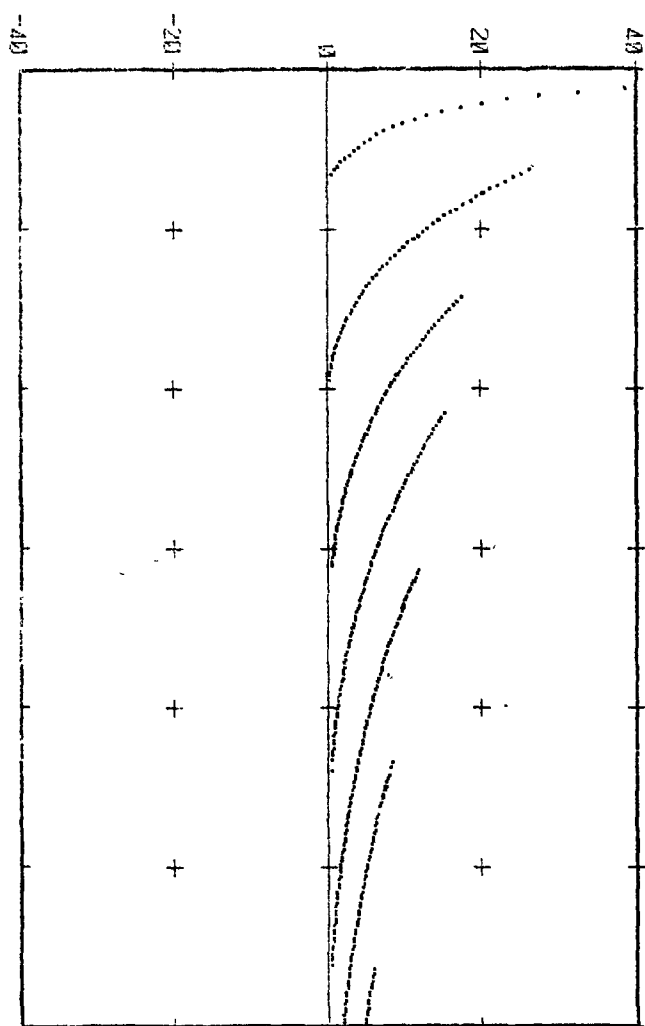
S 20 R17759 F 600

LRAPP

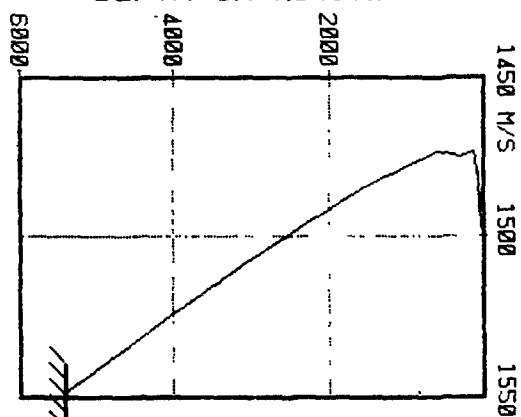
DB LOSS



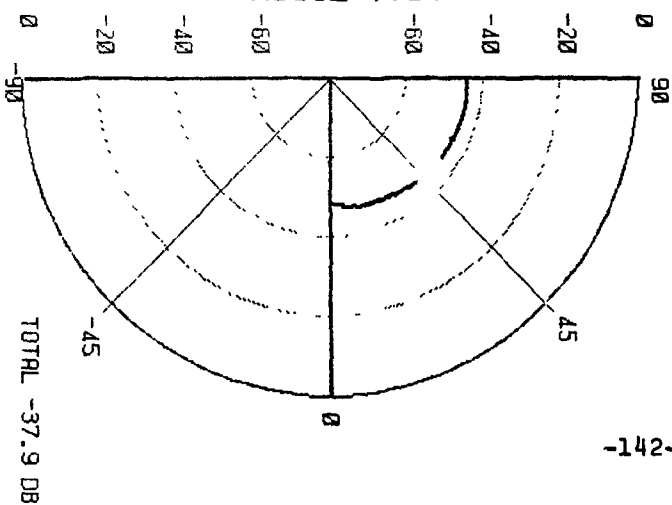
ARRIVAL ANGLE

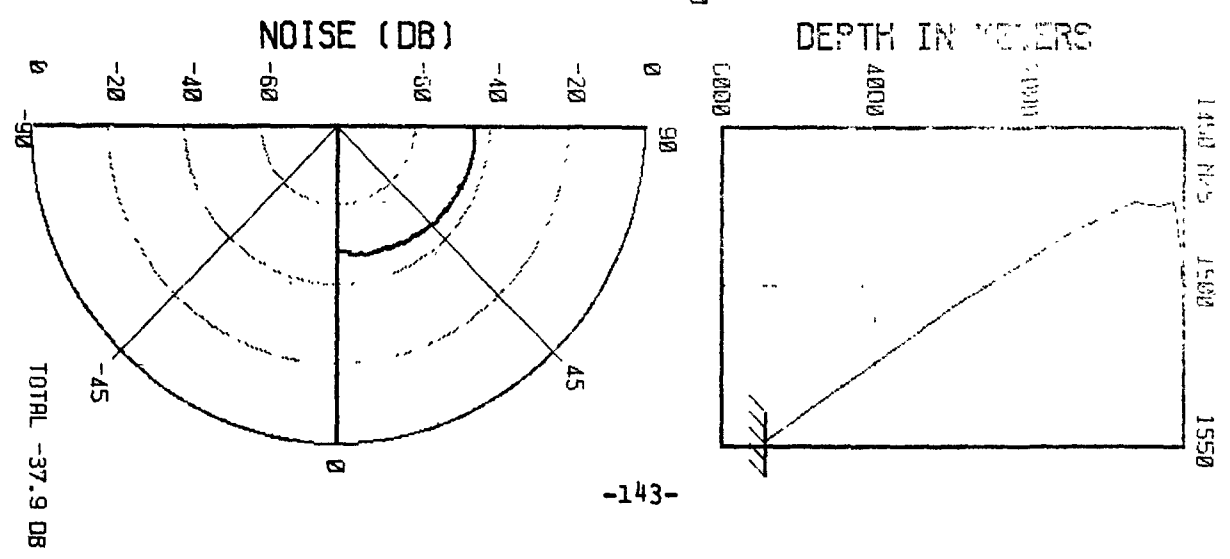
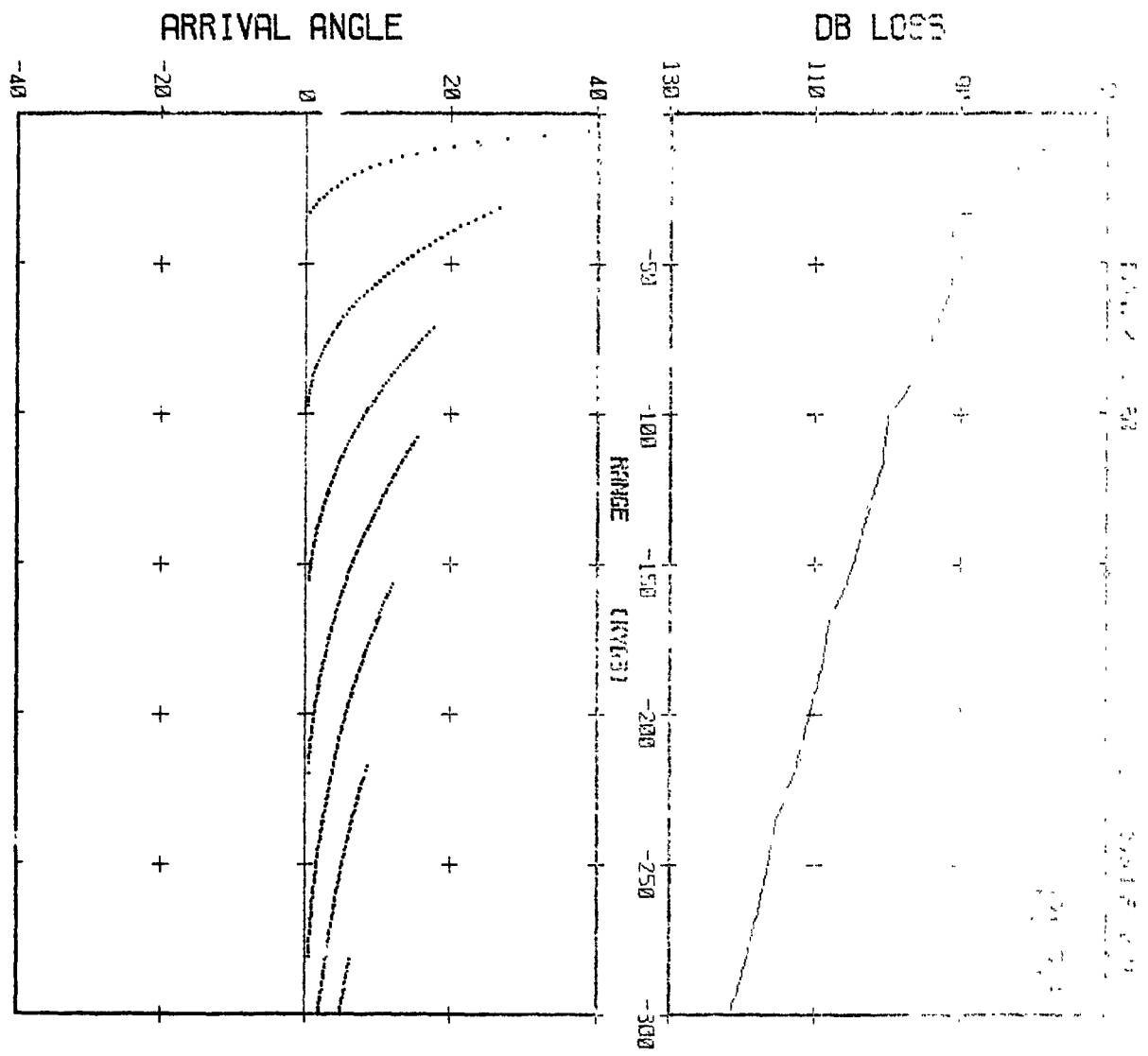


DEPTH IN METERS

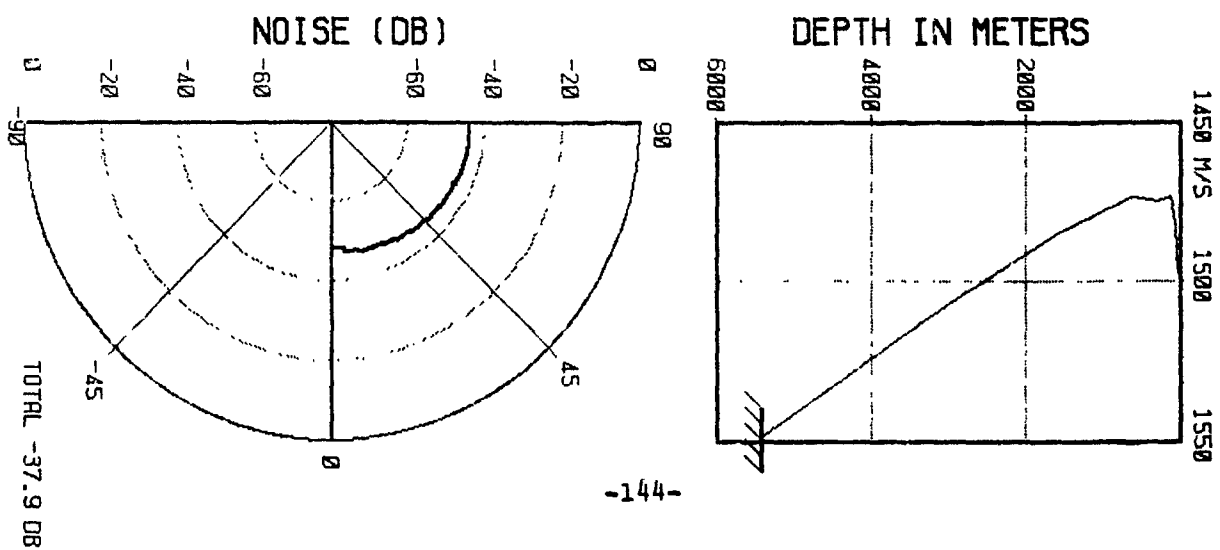
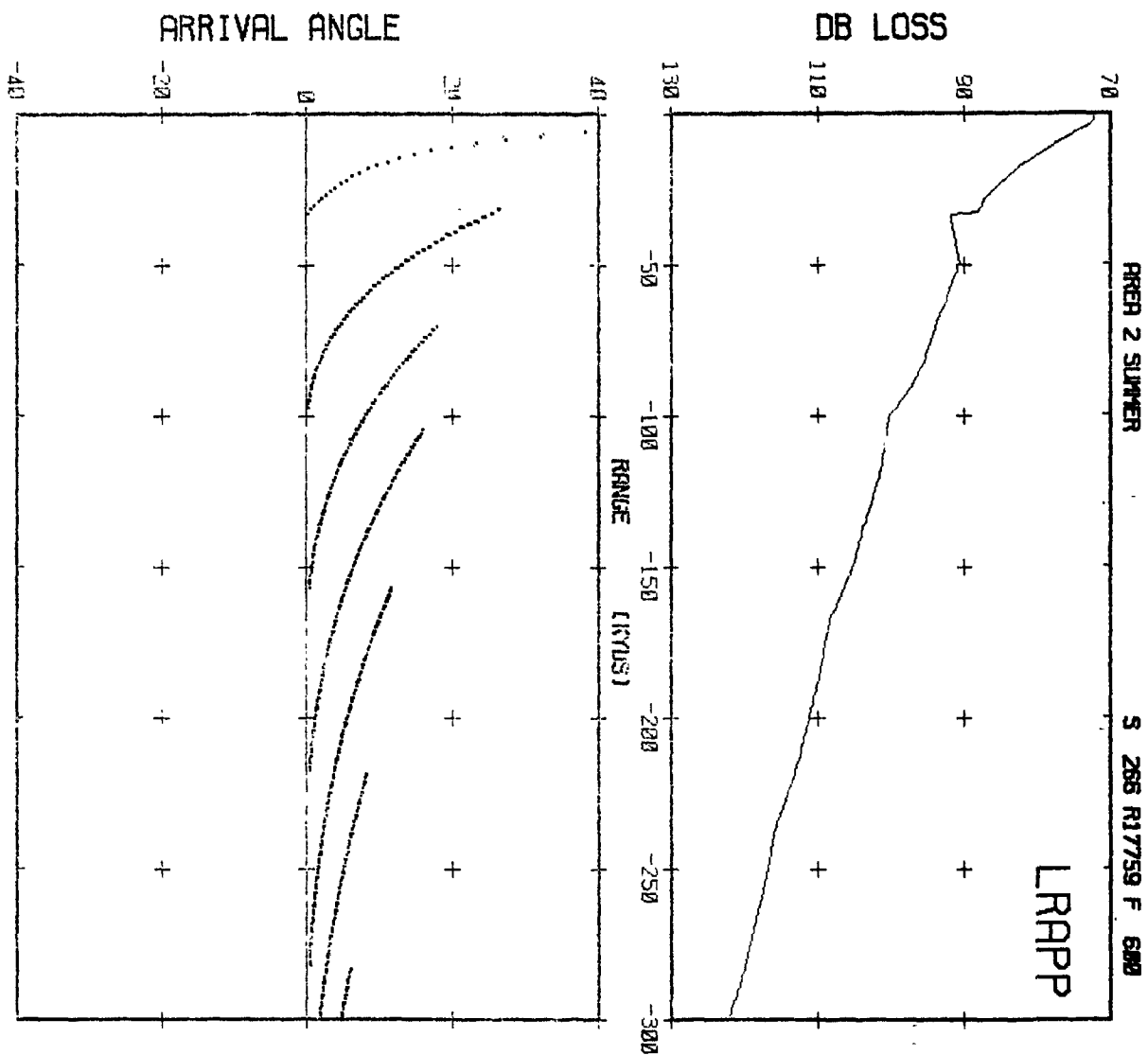


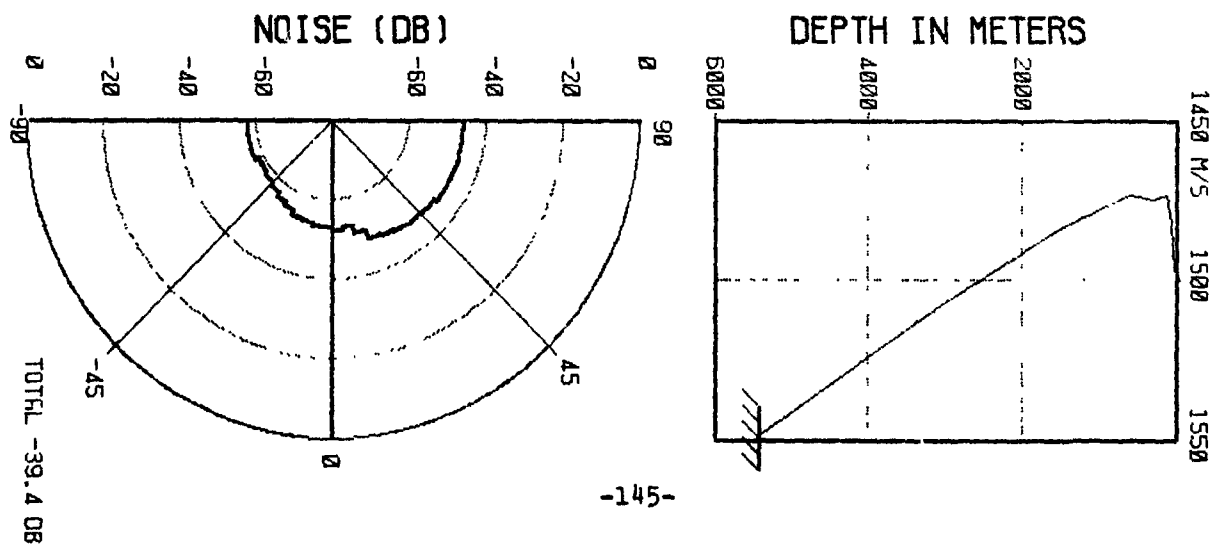
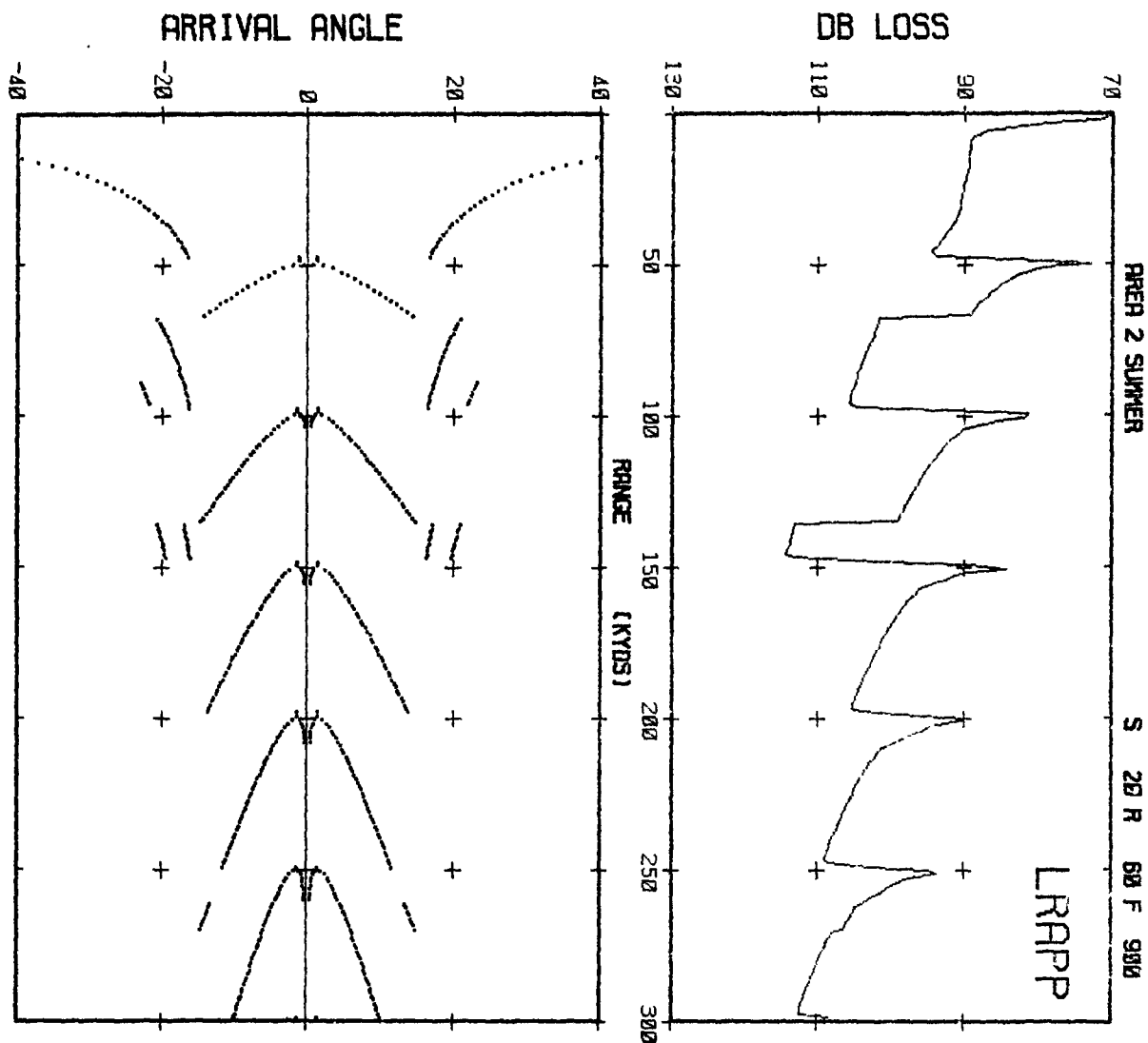
NOISE (DB)

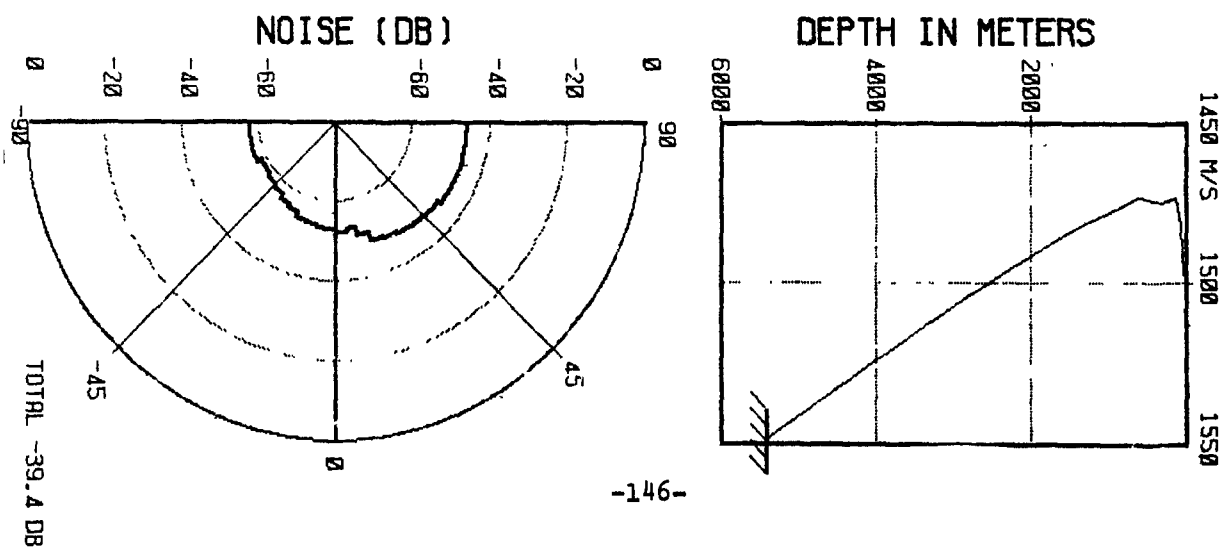
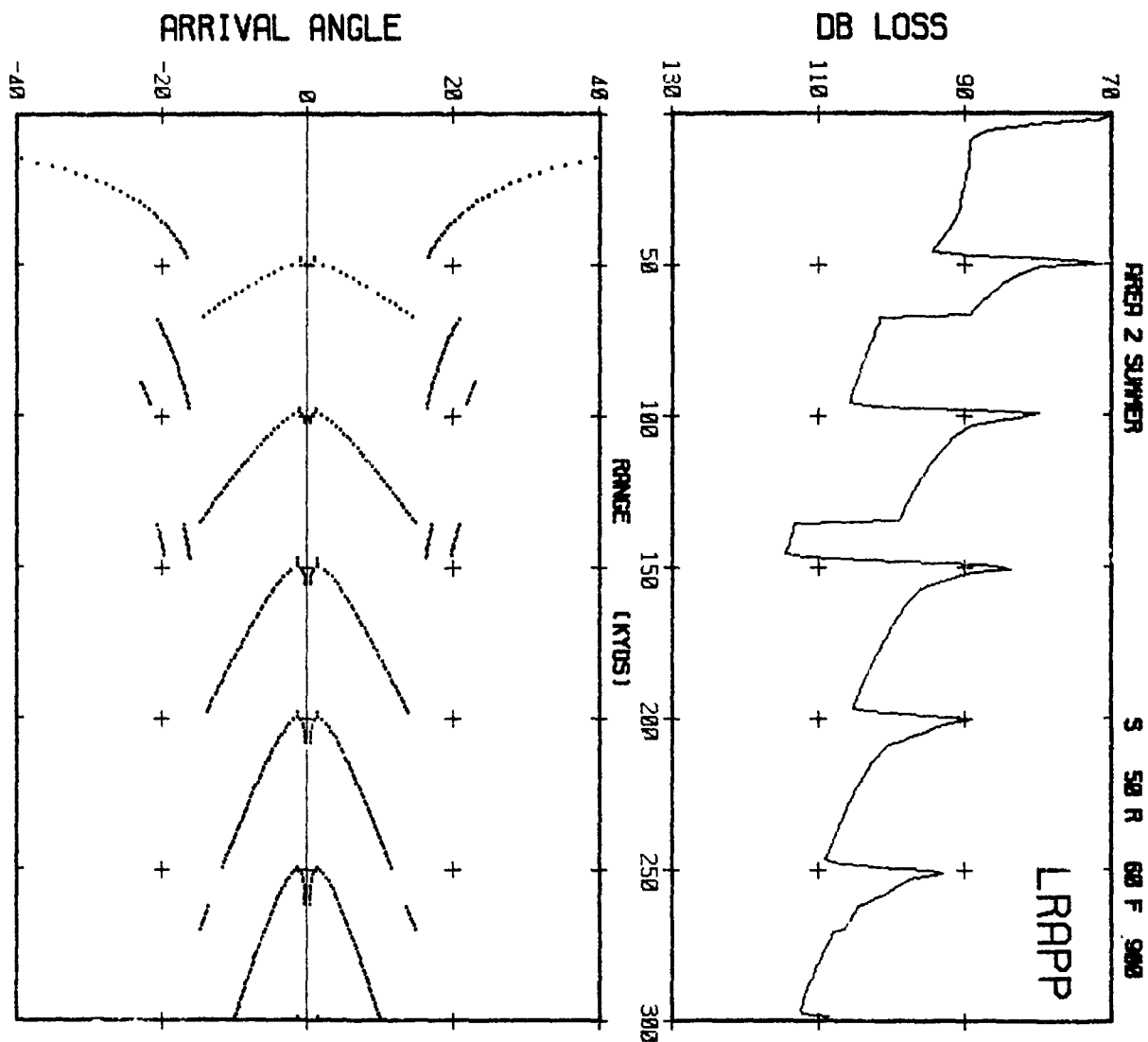


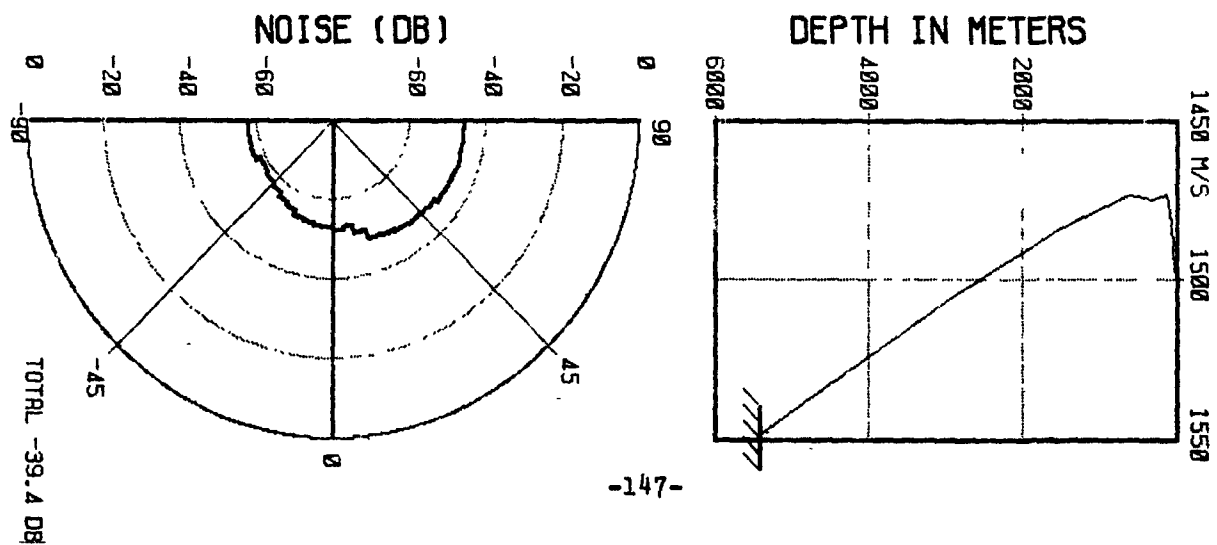
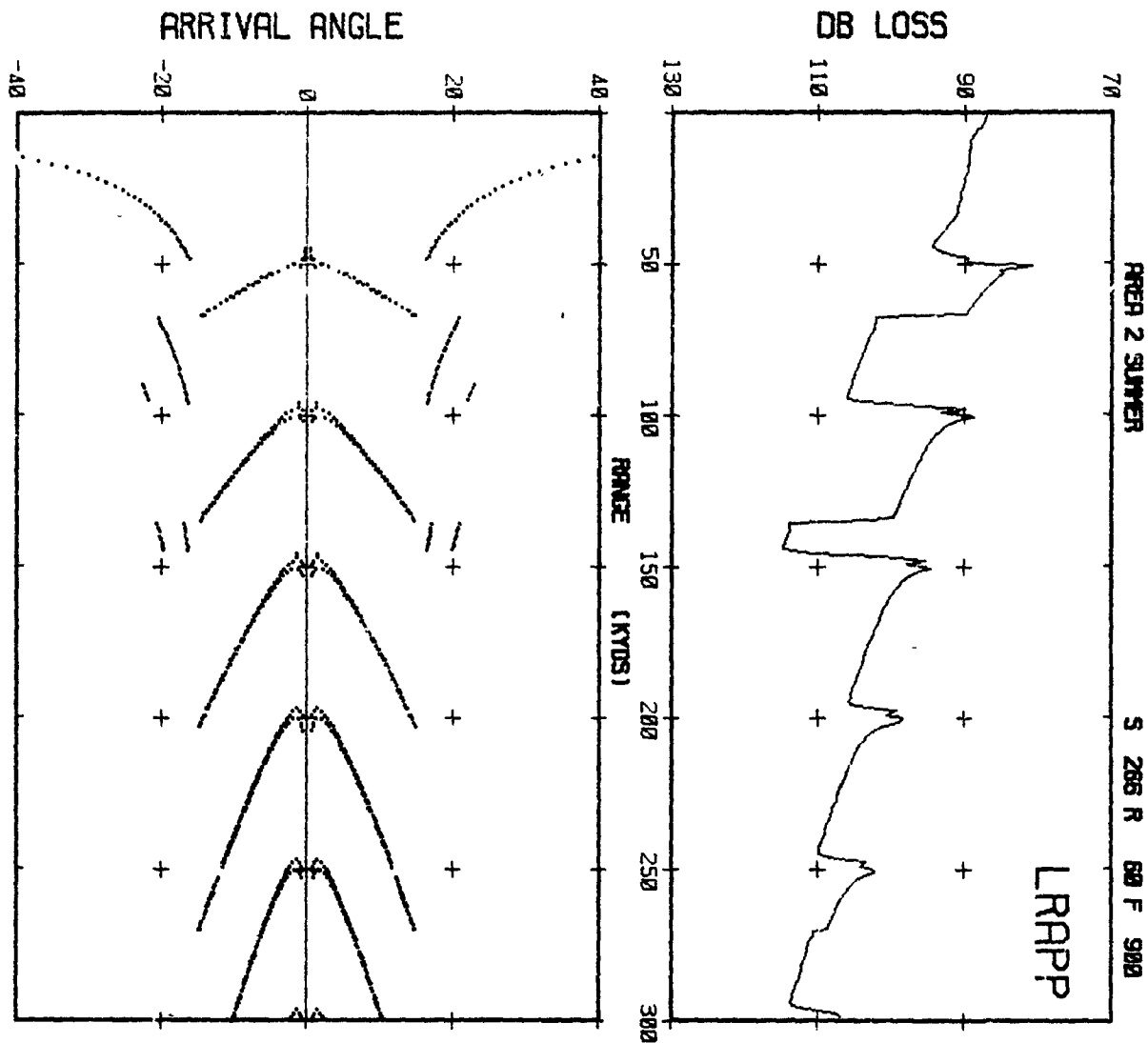










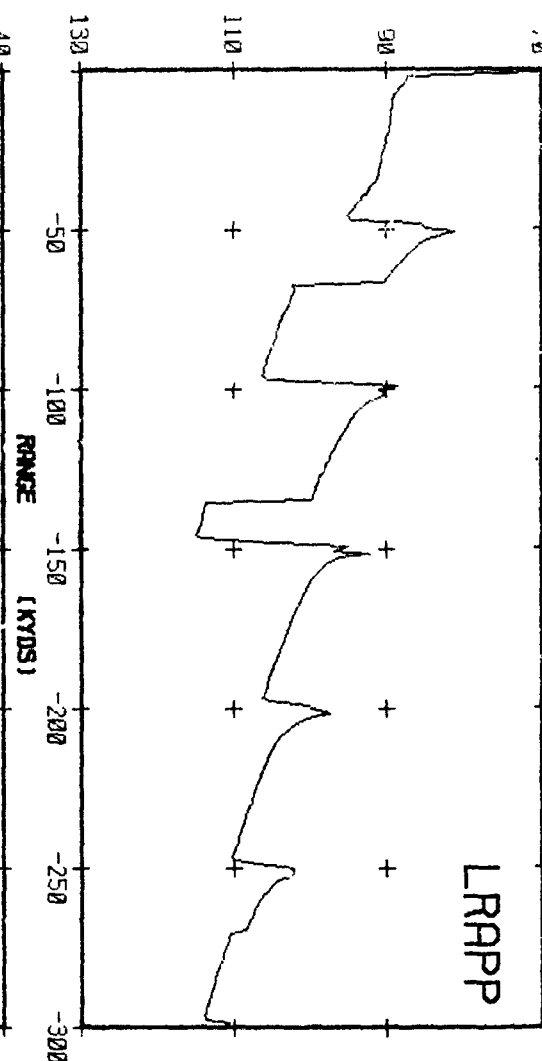


PRER 2 SUMMER

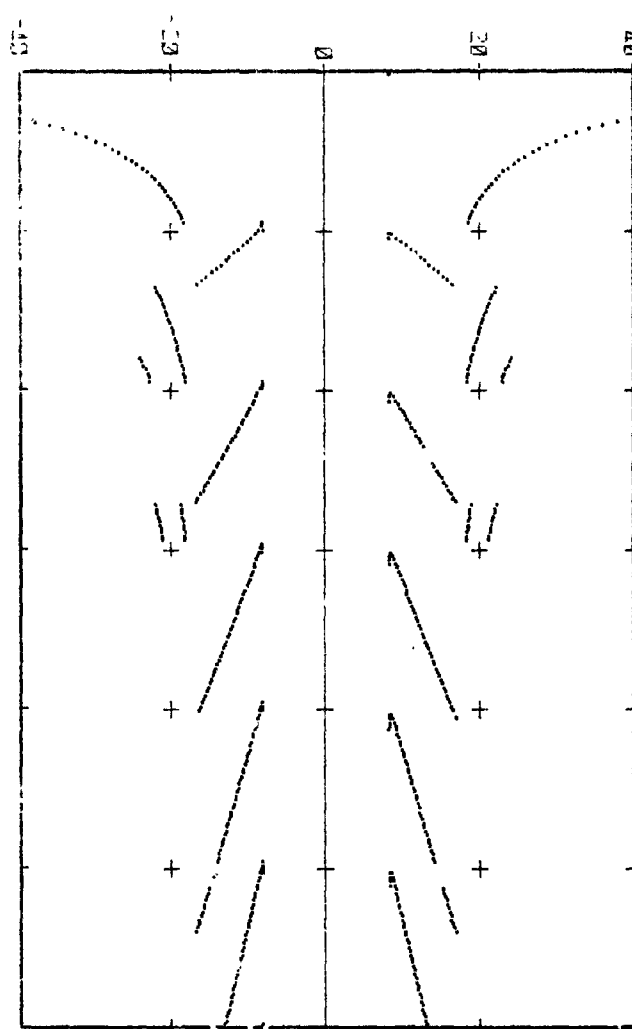
S 20 R 168 F 900

1450 M/S 1500 1550

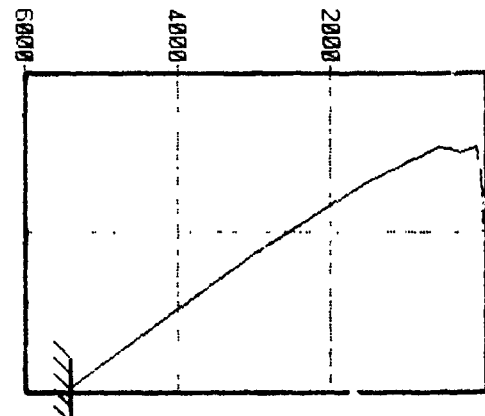
DB LOSS



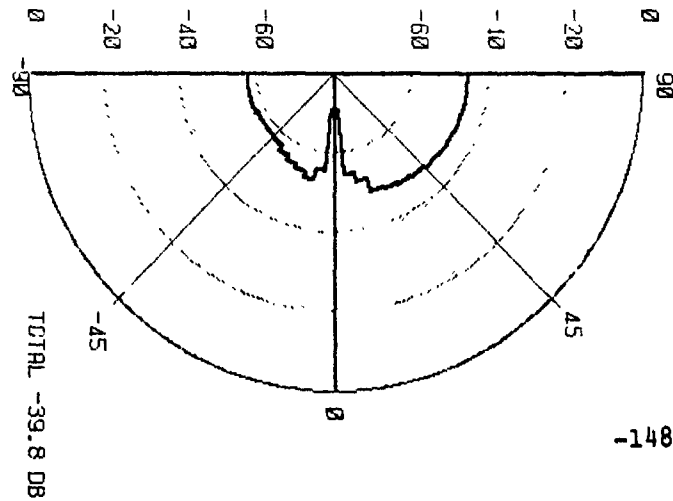
ARRIVAL ANGLE



DEPTH IN METERS



NOISE (DB)



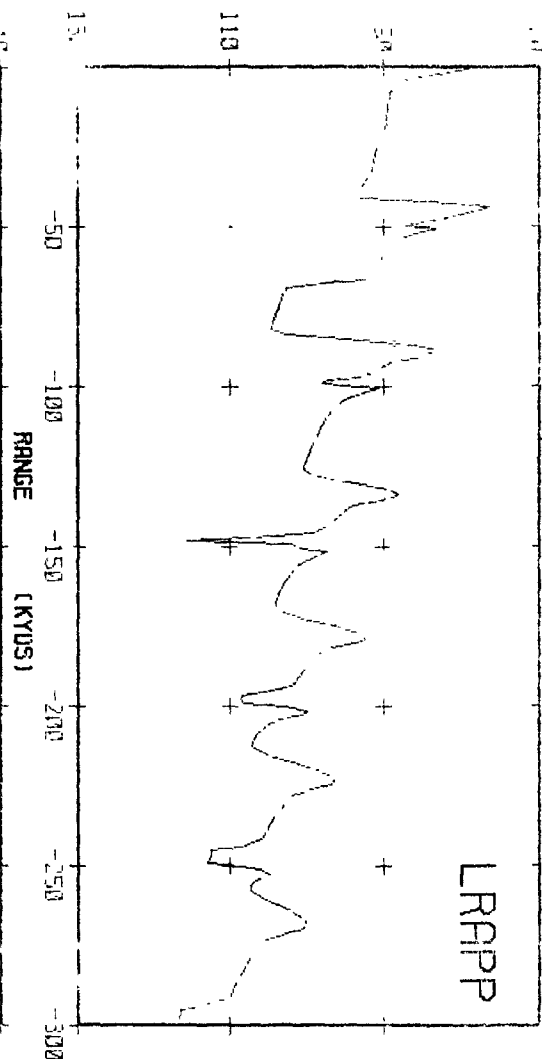


PRER 2 SUMMER

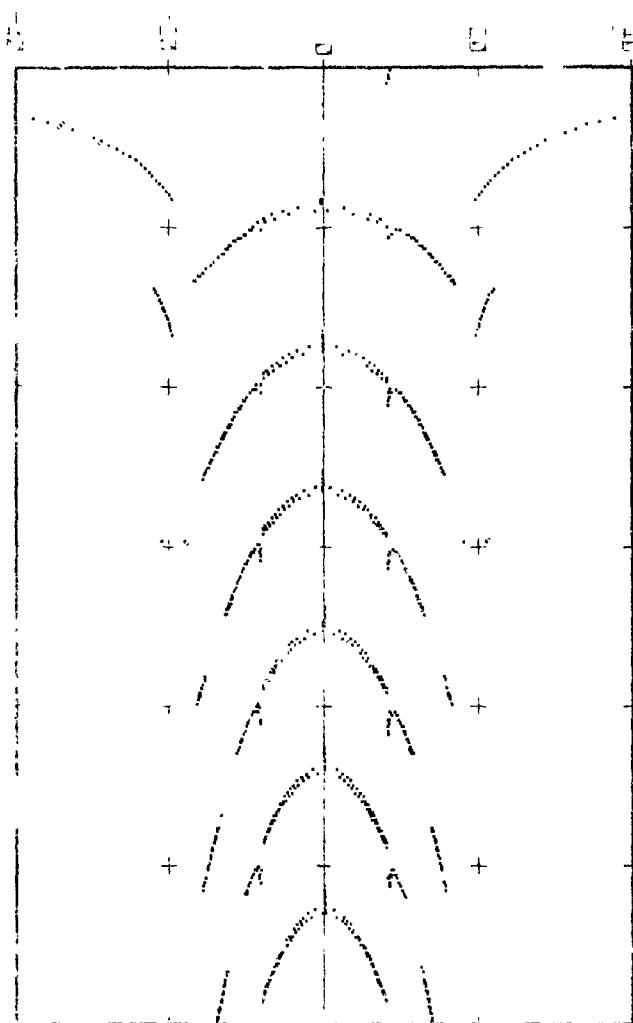
S 266 R 166 F 900

LRAPP

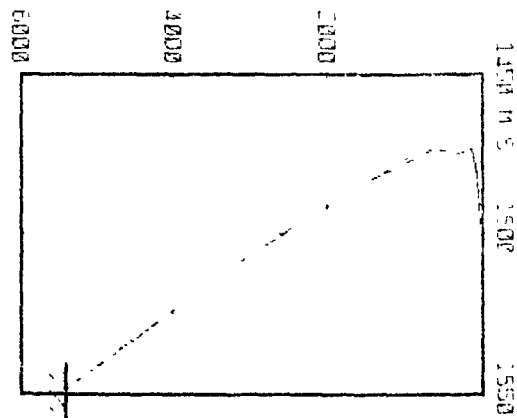
DB LOSS



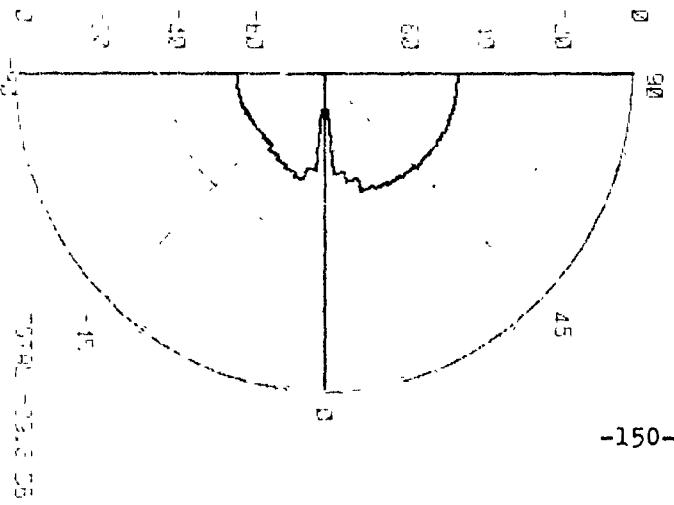
ARRIVAL ANGLE



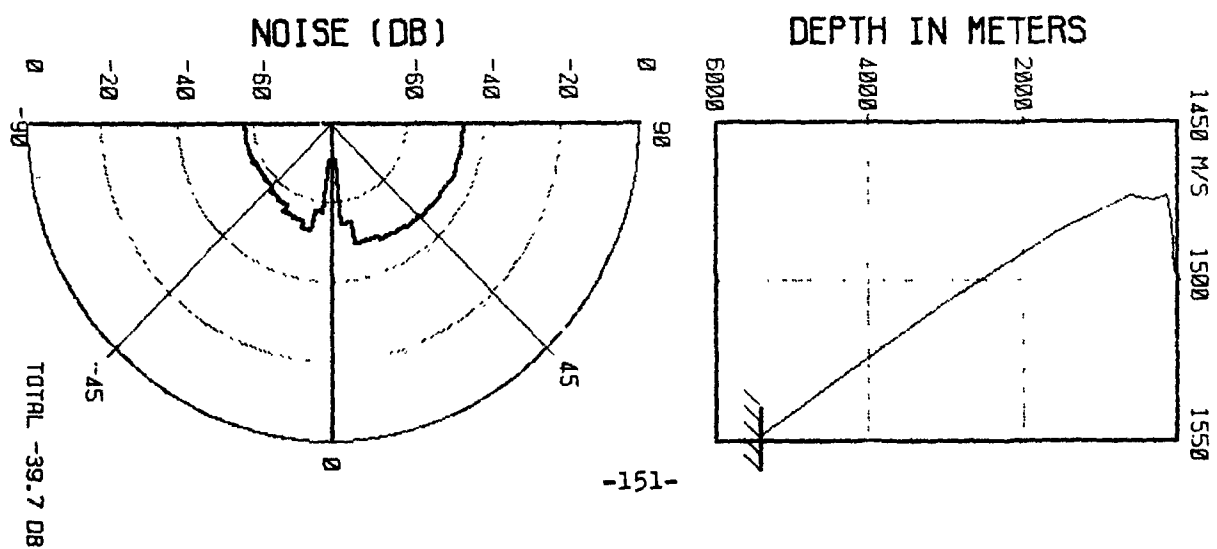
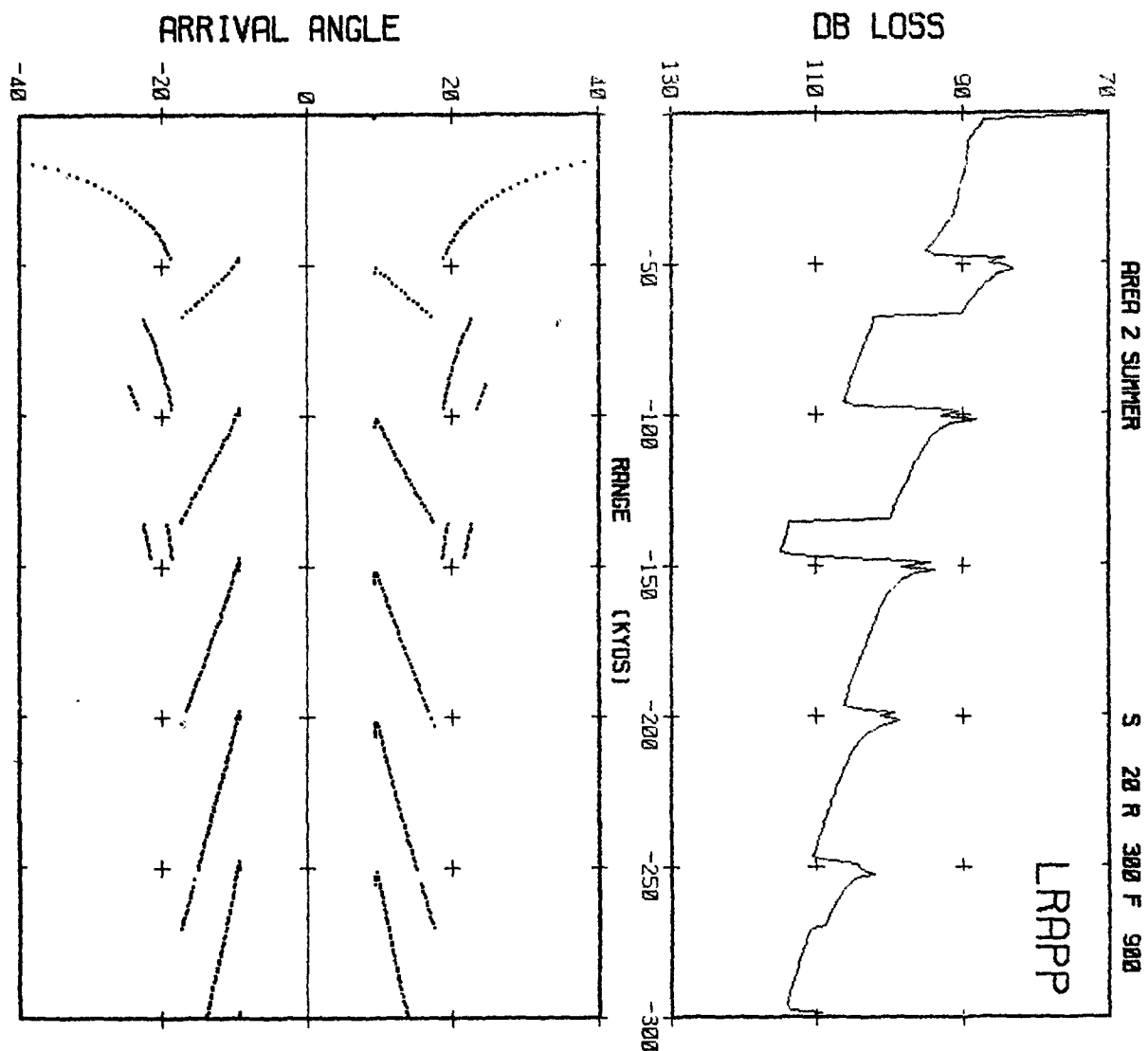
DEPTH IN METERS



NOISE (DB)



TOTAL -23.6 DB

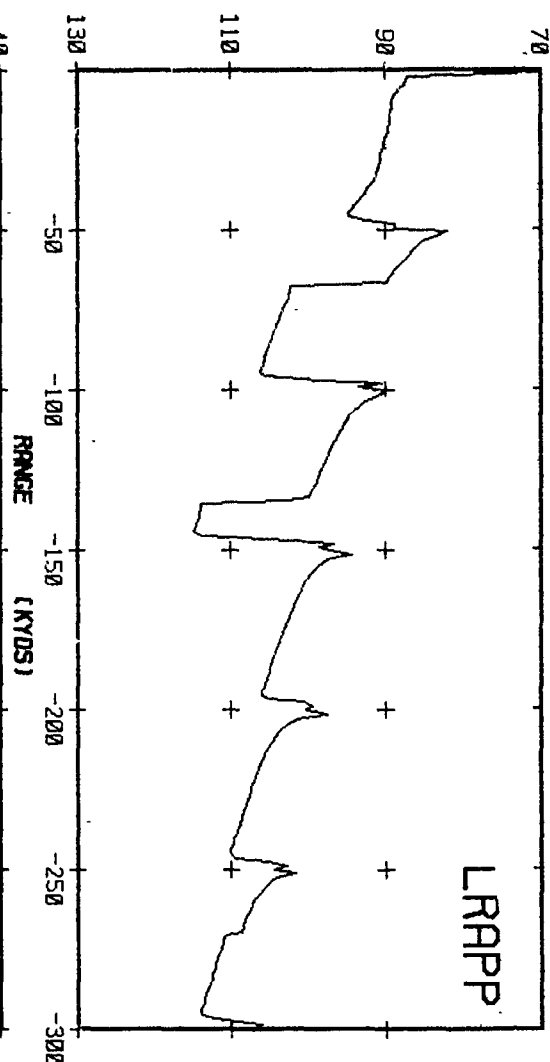




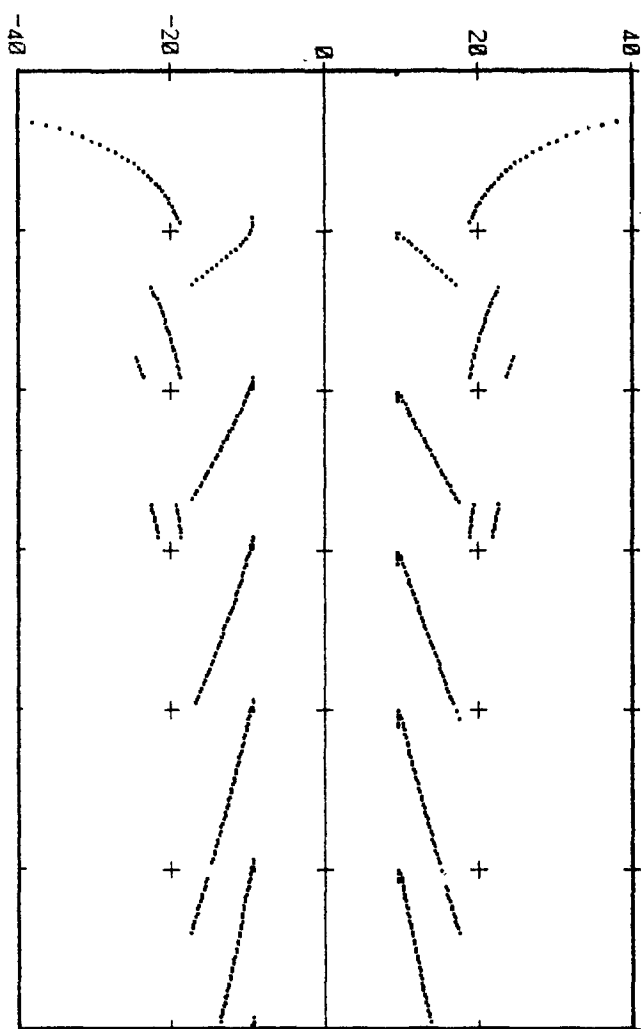
AREA 2 SUMMER

S 50 R 300 F 900

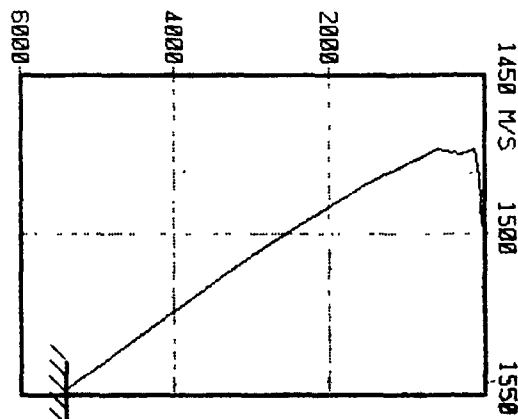
DB LOSS



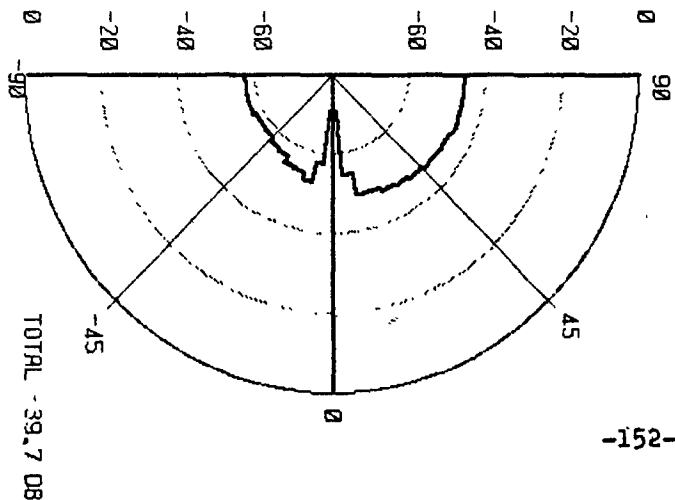
ARRIVAL ANGLE

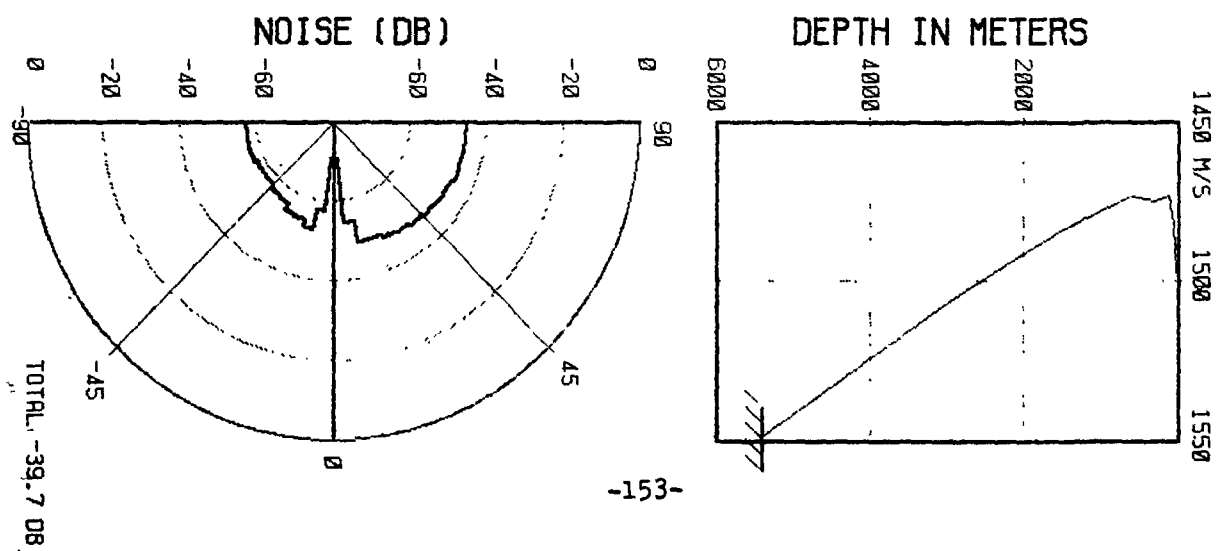
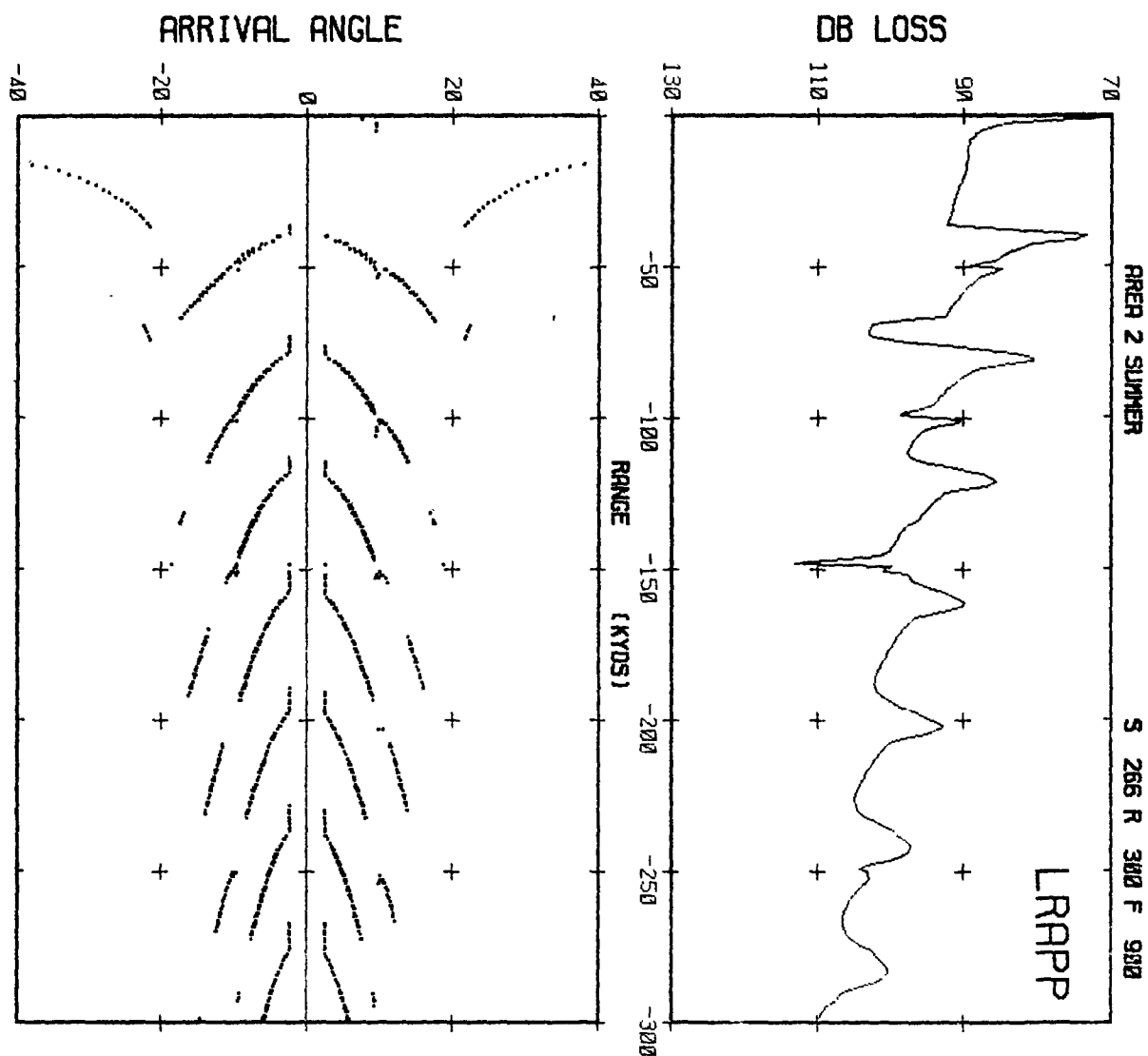


DEPTH IN METERS



NOISE (DB)

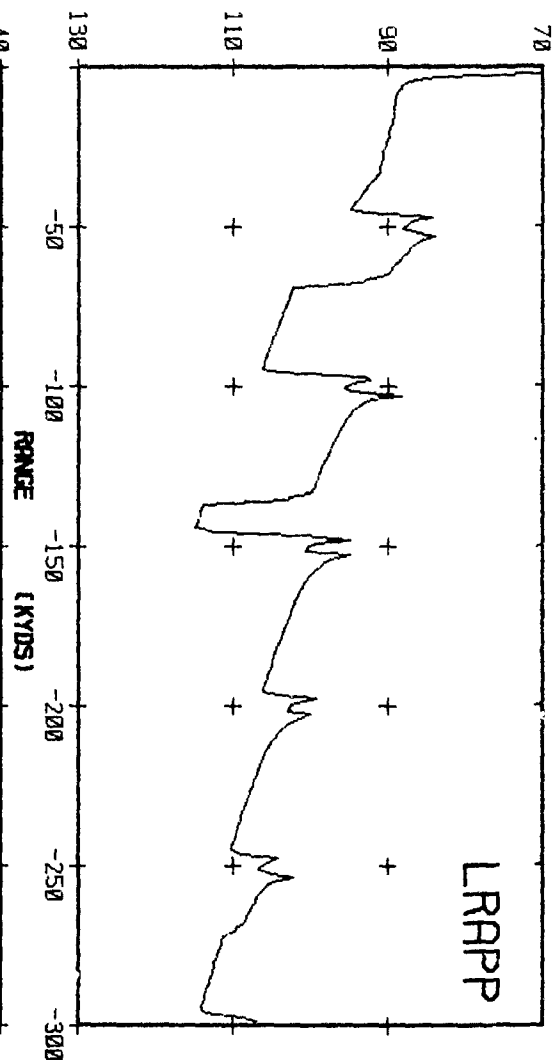




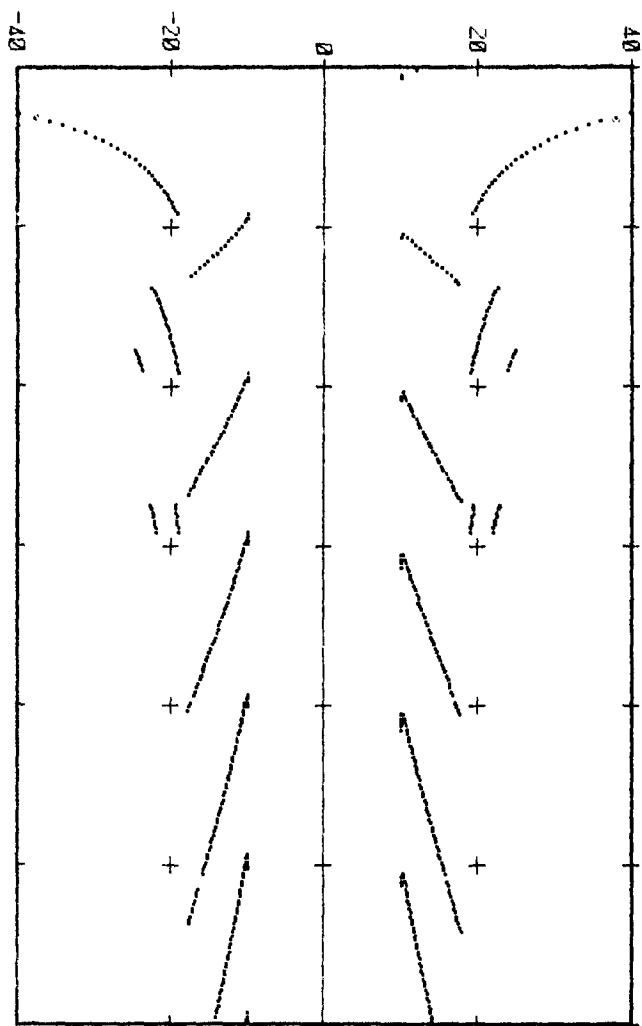
AREA 2 SUMMER

S 28 R 1800 F 900

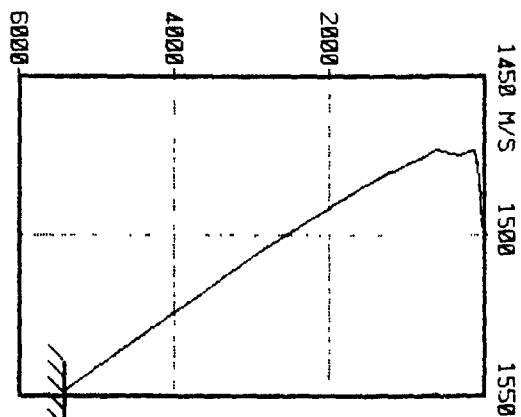
DB LOSS



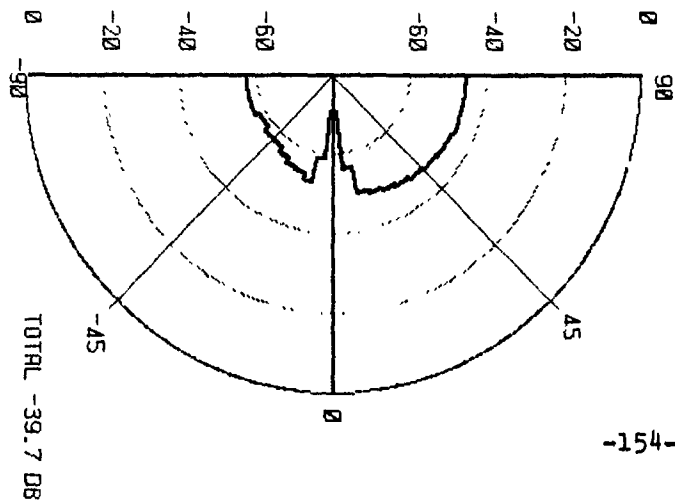
ARRIVAL ANGLE



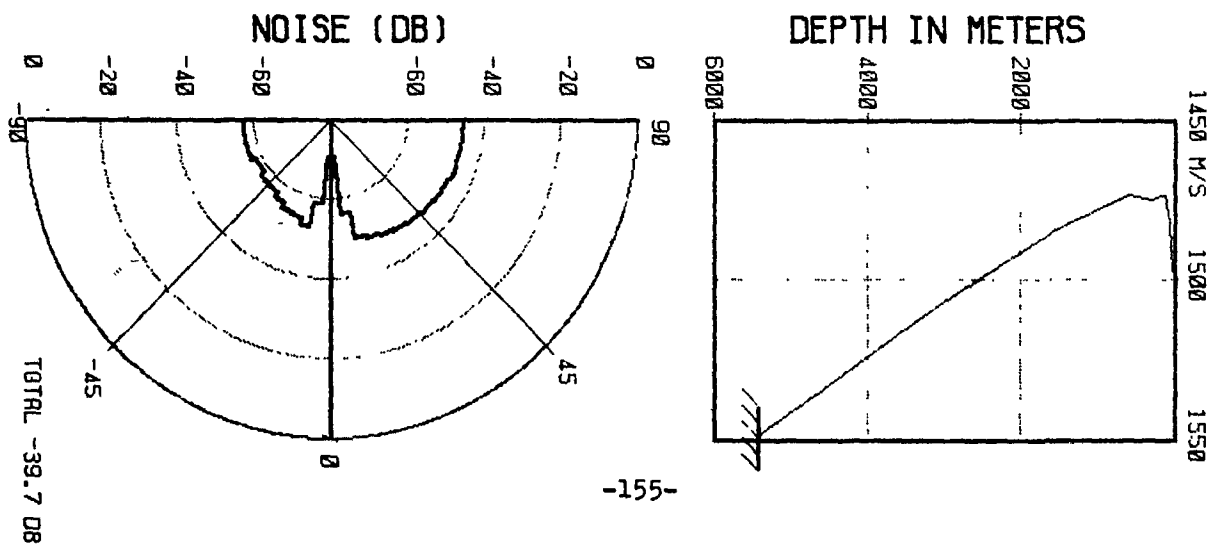
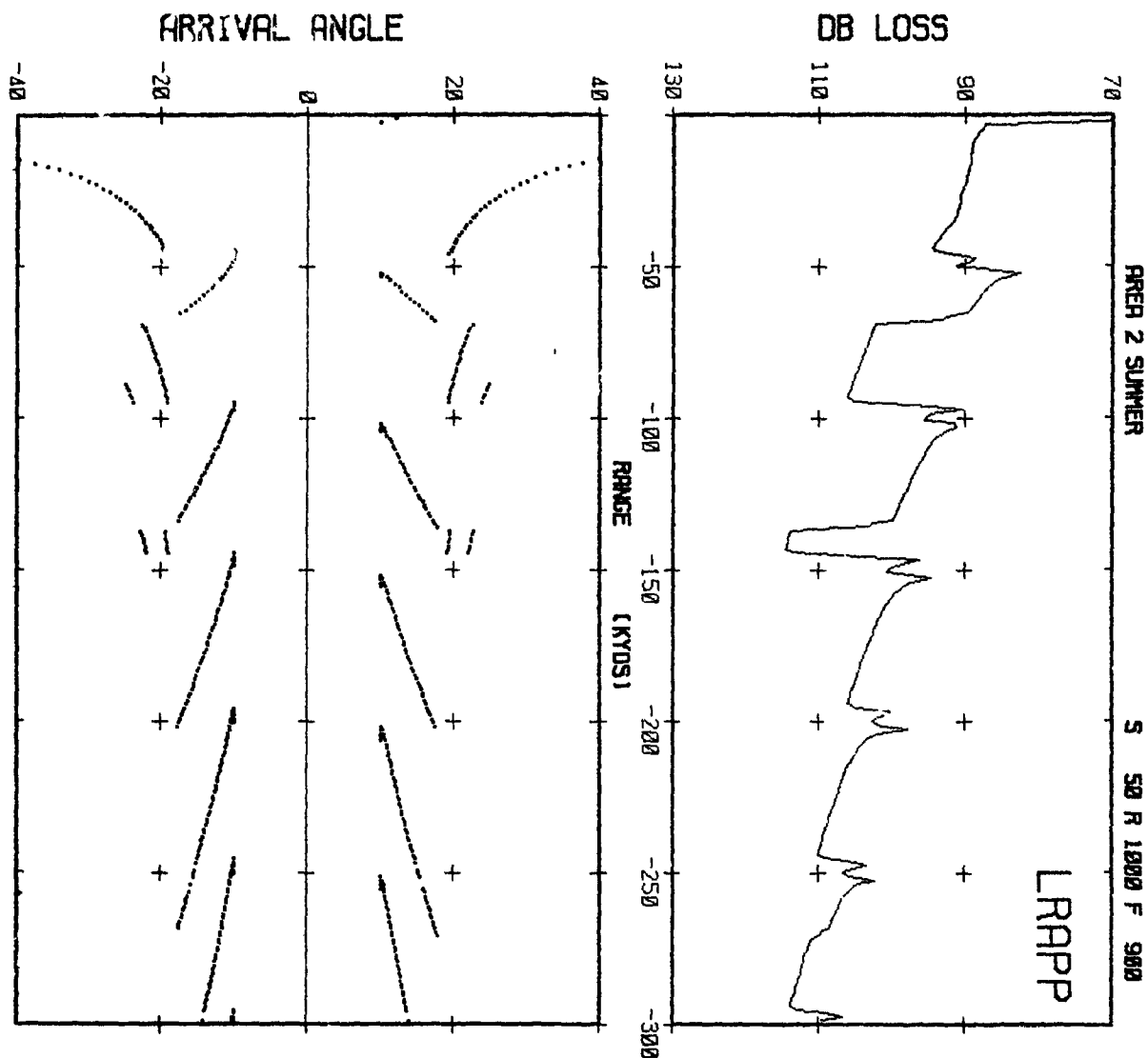
DEPTH IN METERS

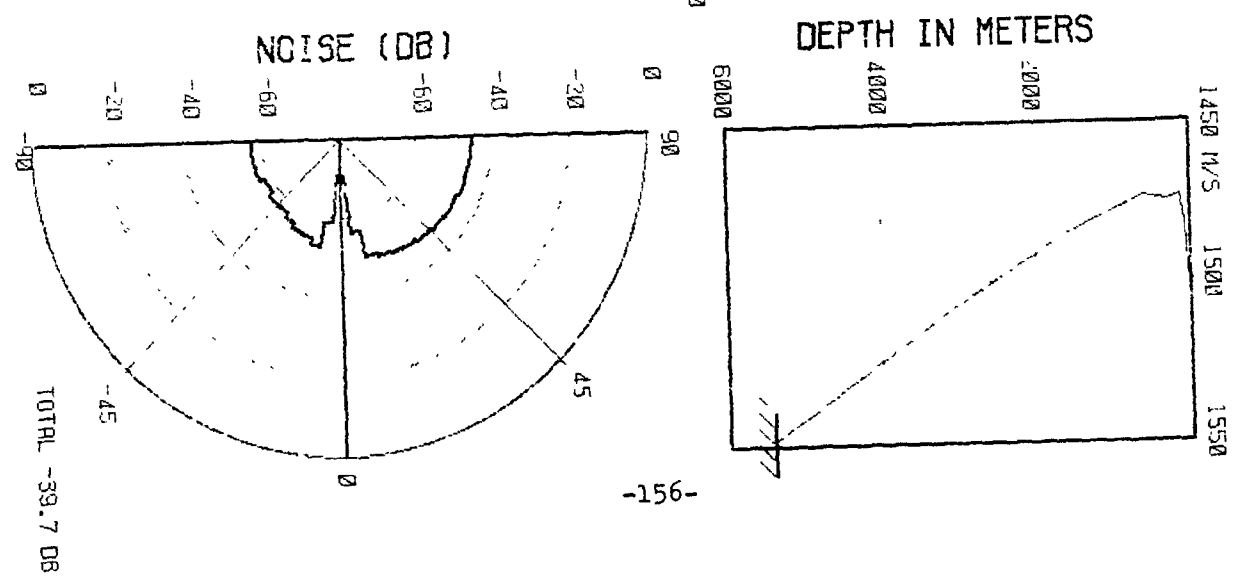
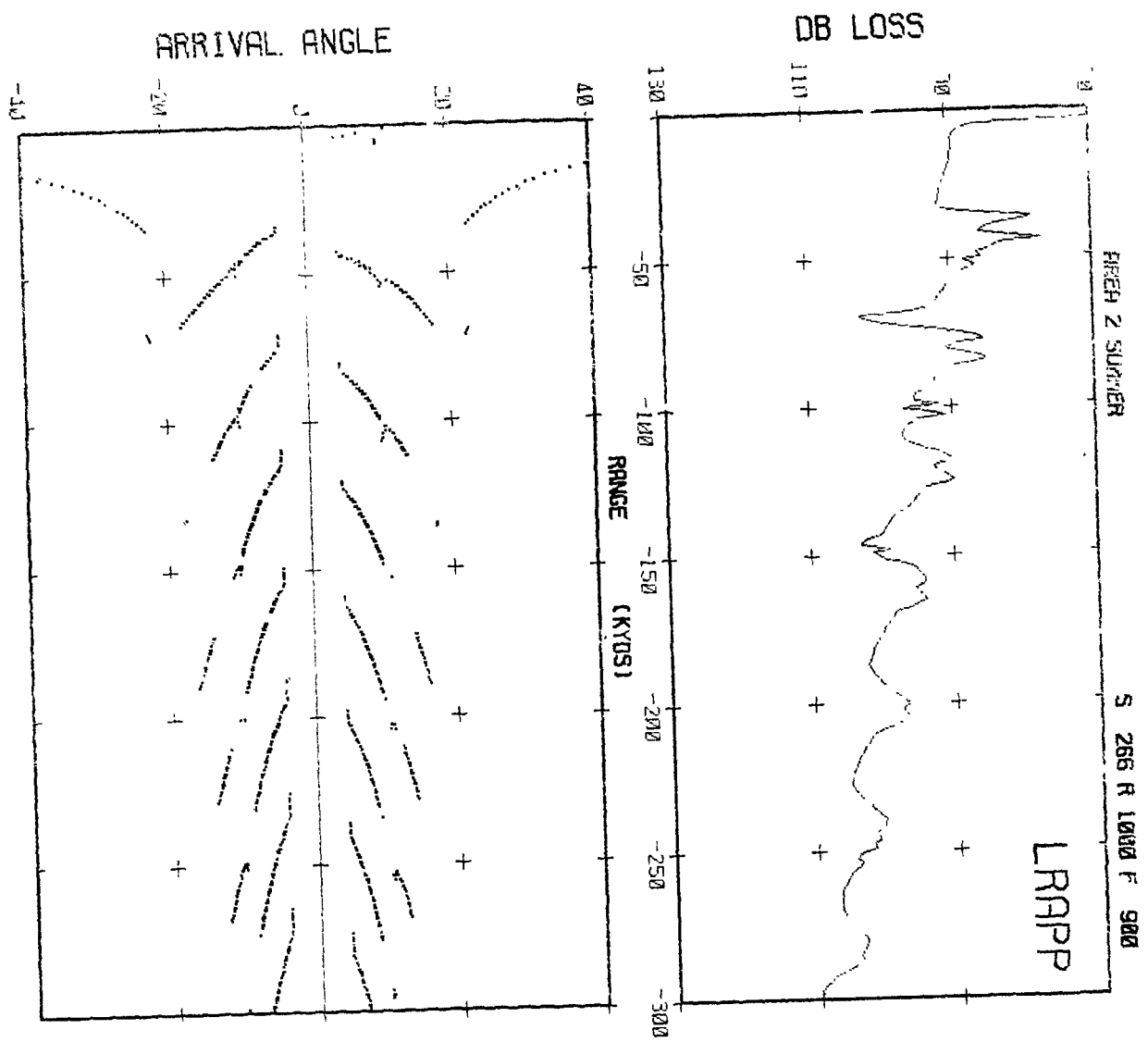


NOISE (DB)



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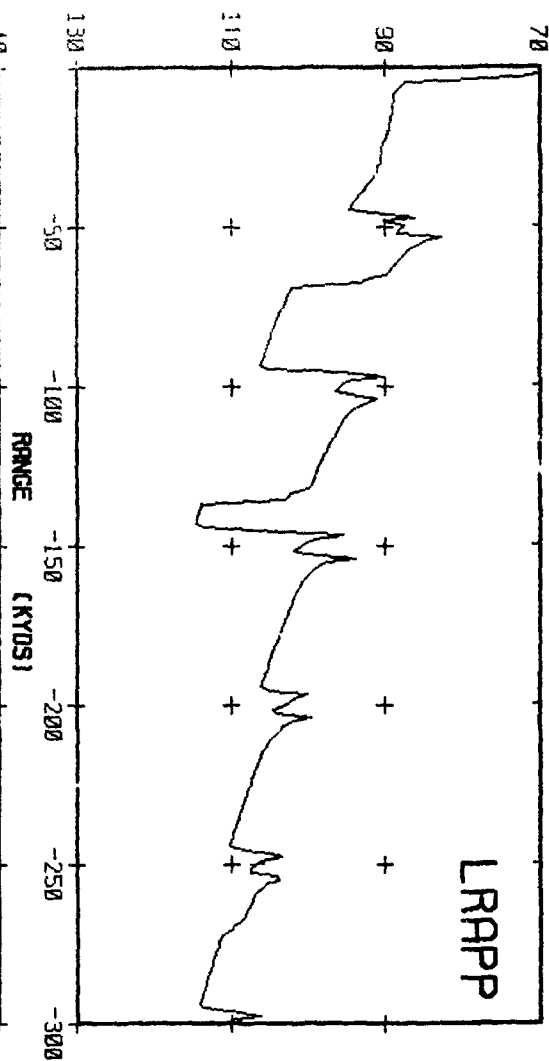




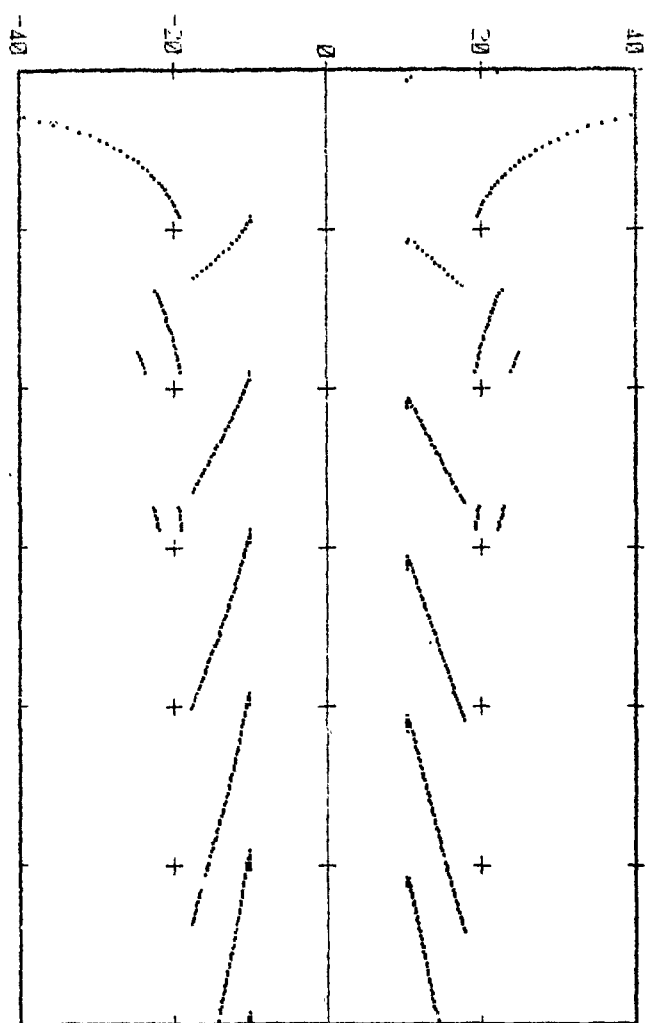
RIDER 2 SUMMER

S 20 R 1500 F 9000

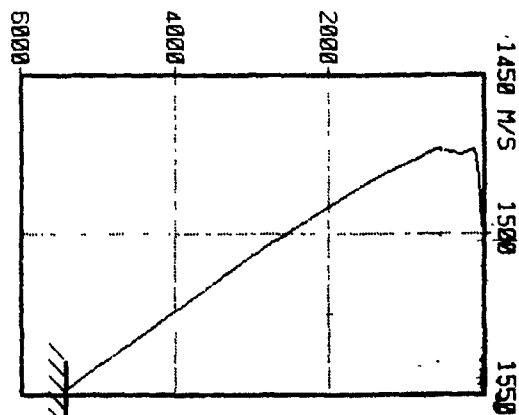
DB LOSS



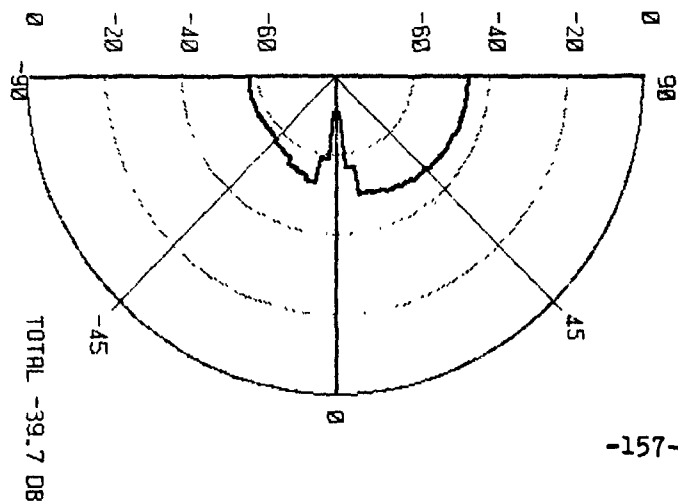
ARRIVAL ANGLE

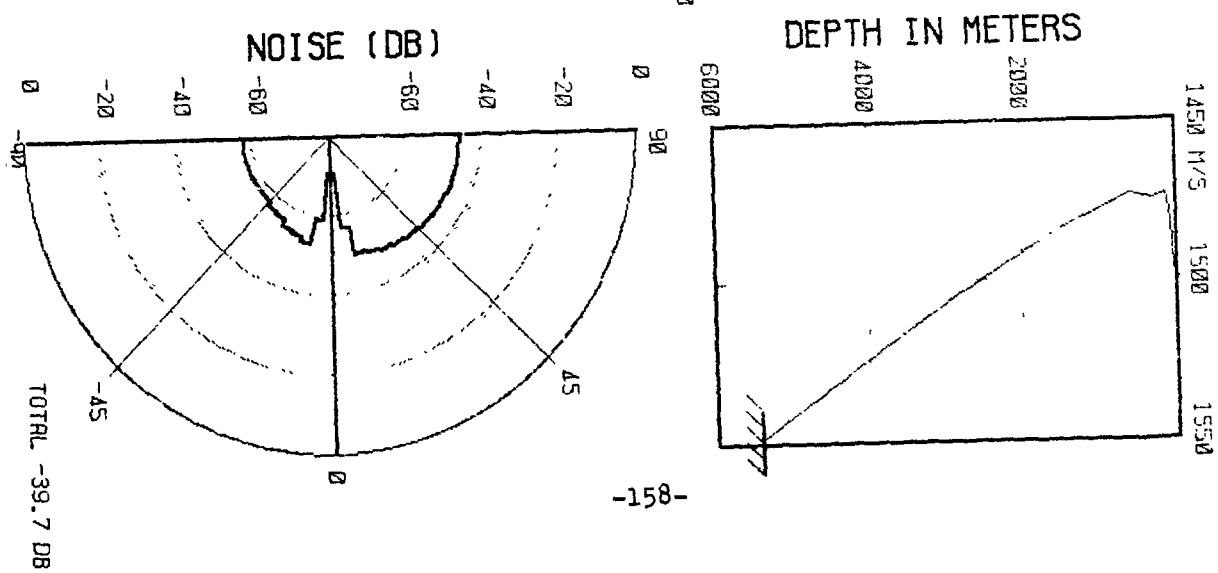
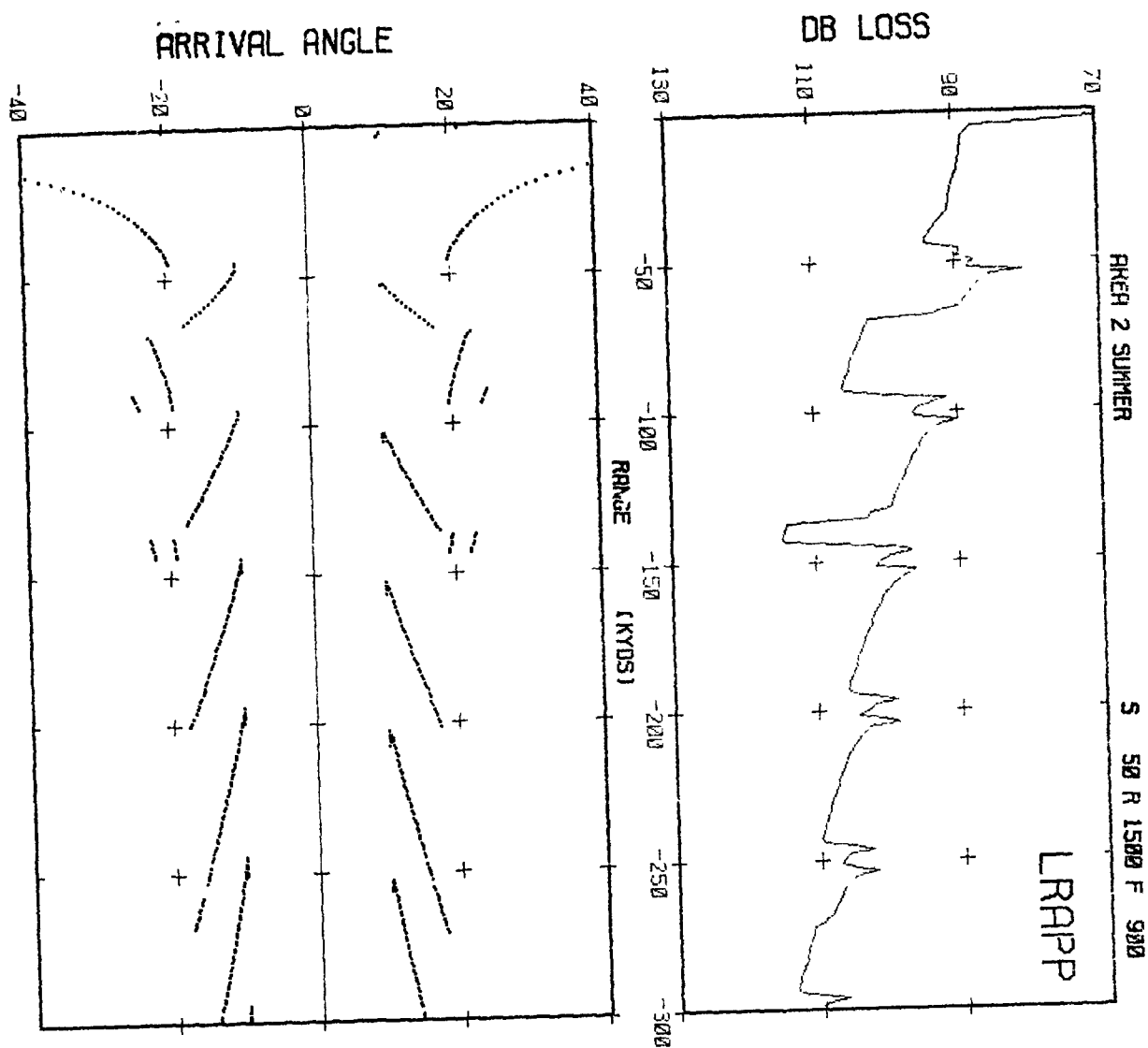


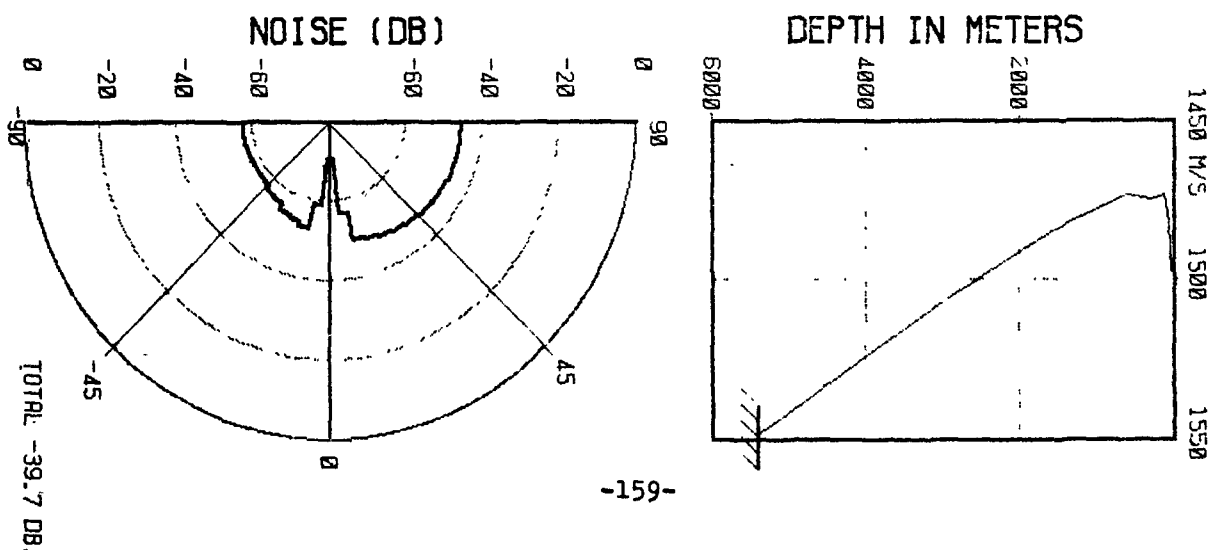
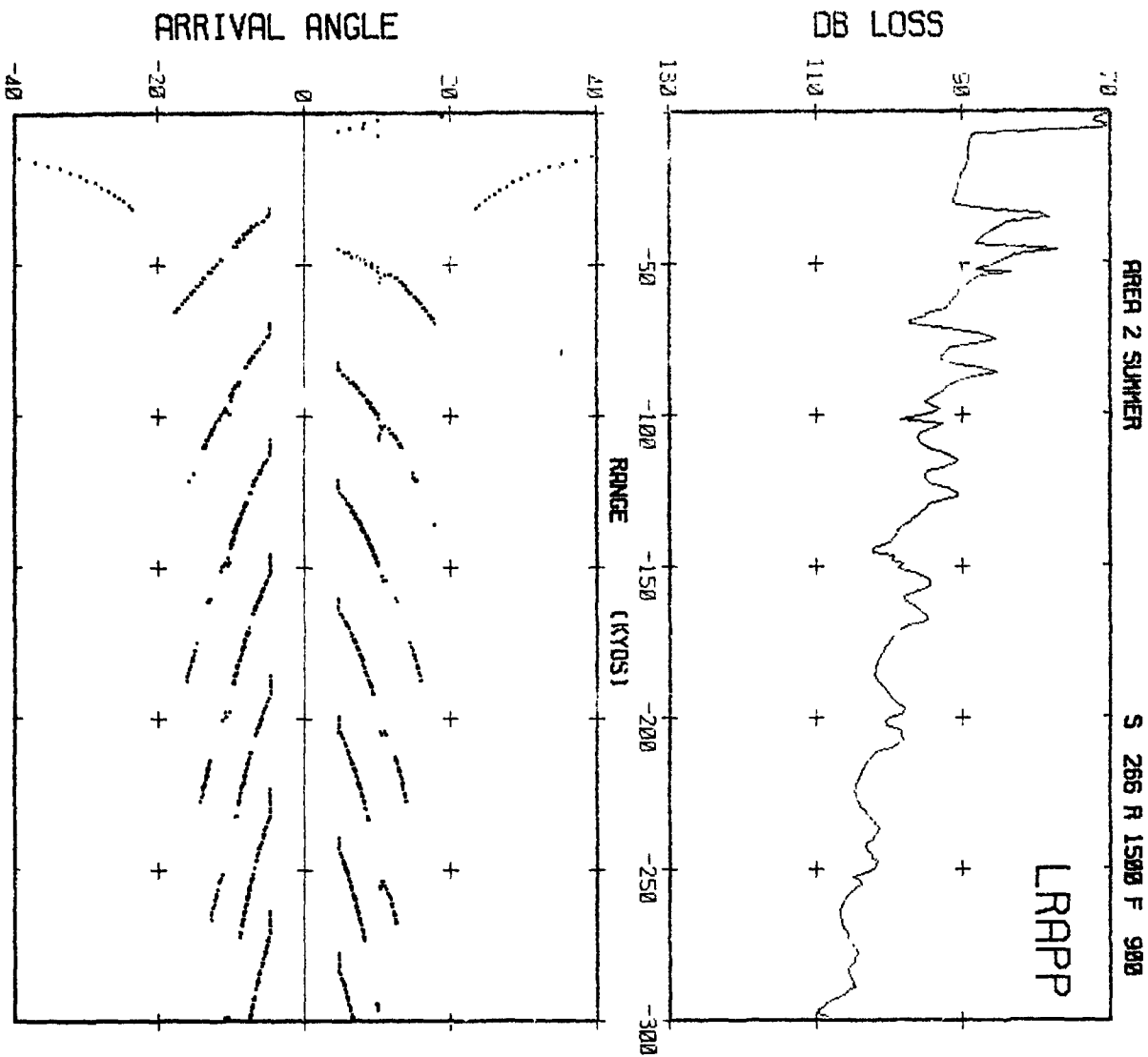
DEPTH IN METERS



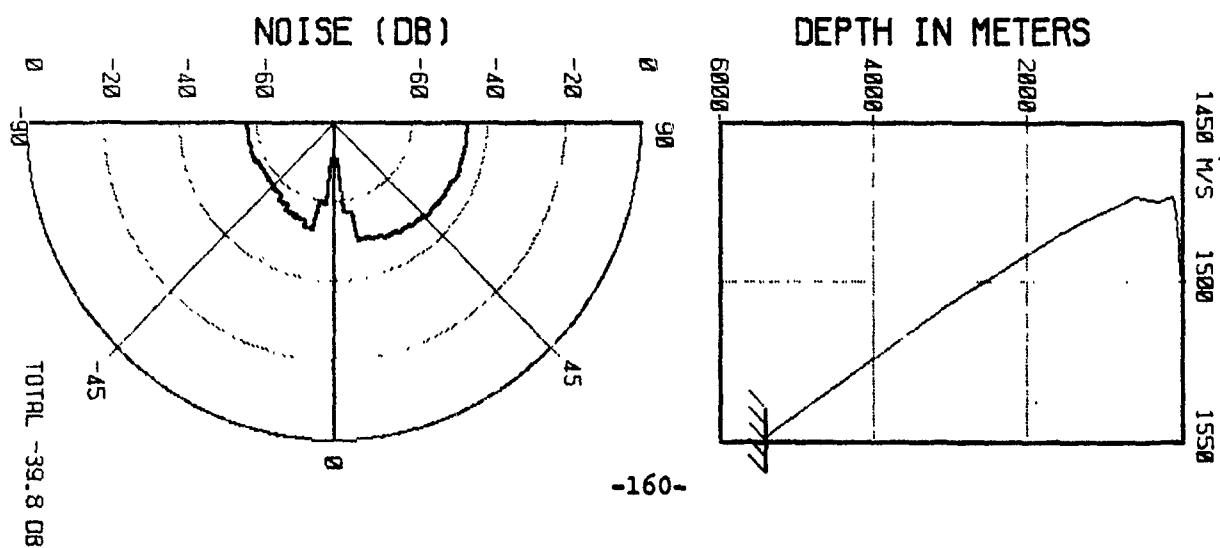
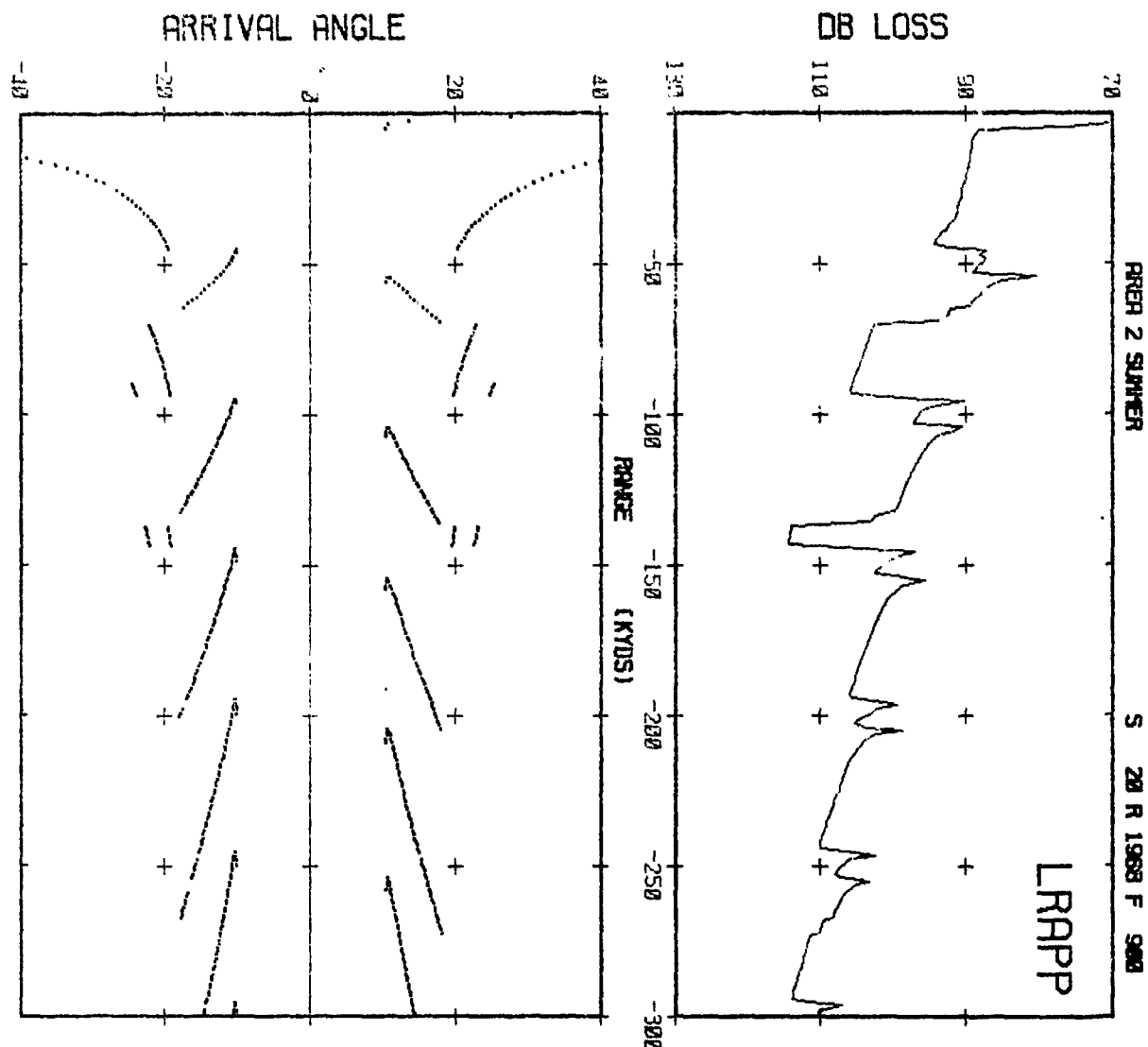
NOISE (DB)

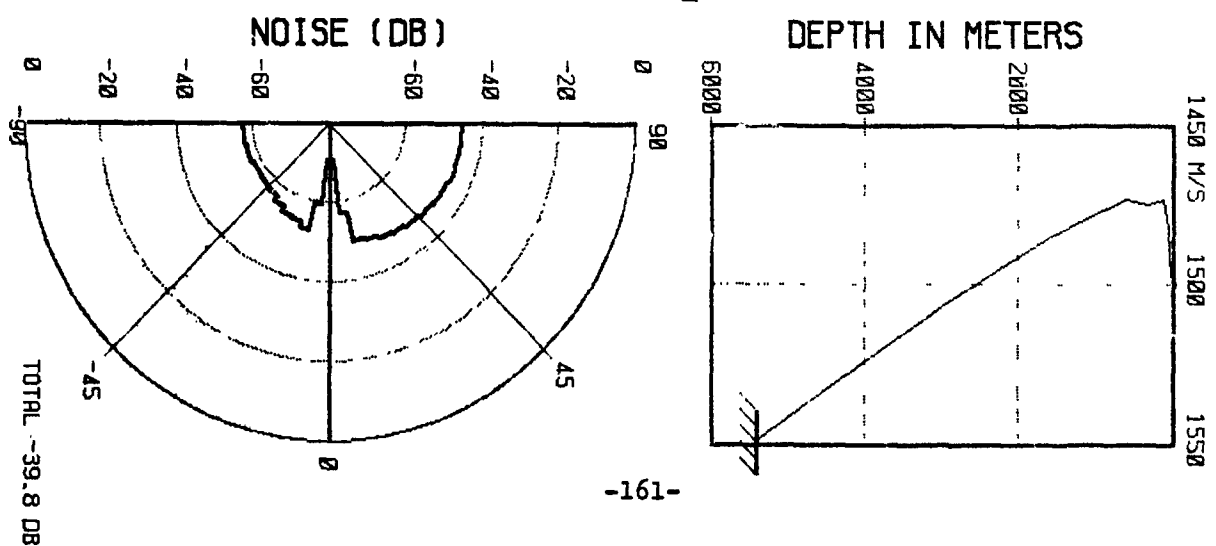
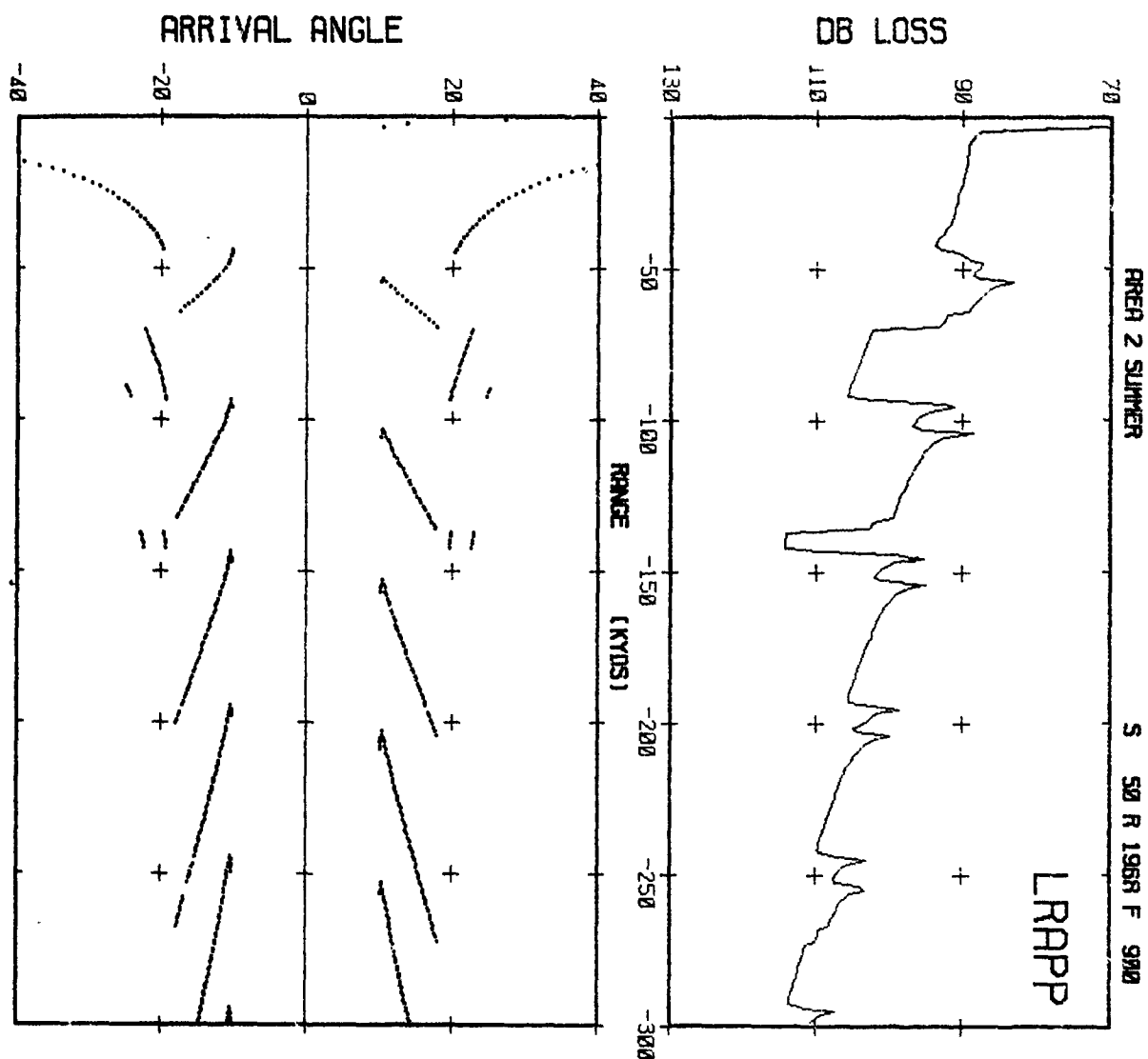










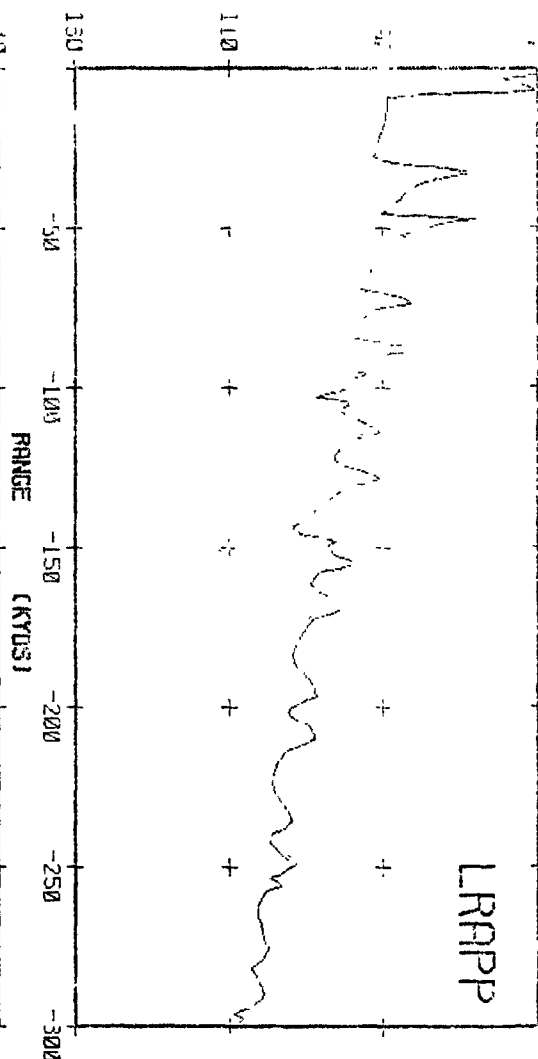


AREA 2 SUMMER

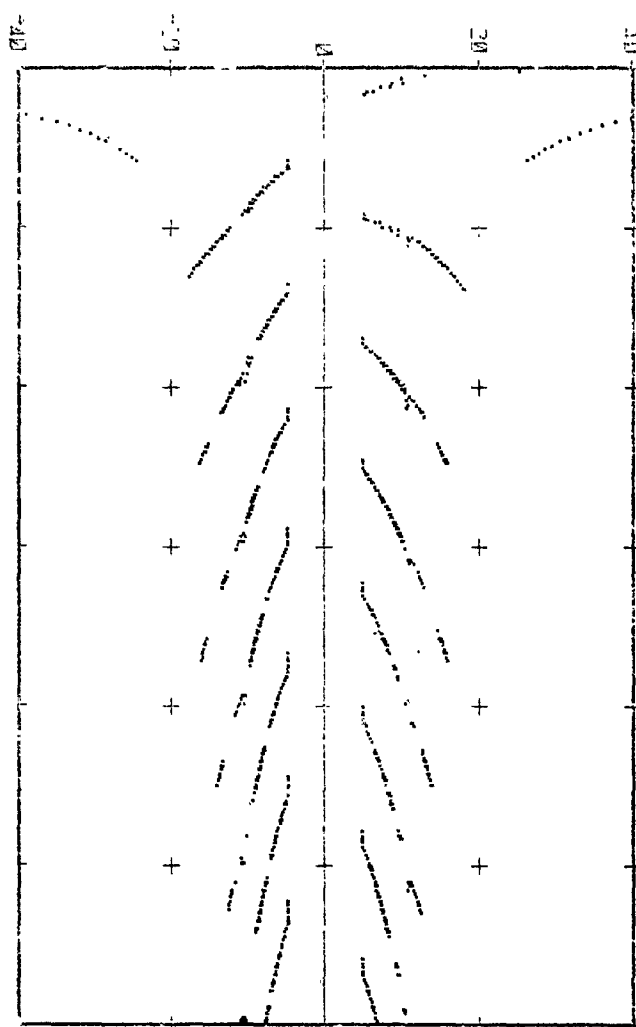
S 266 R 1969 F 900

LRPP

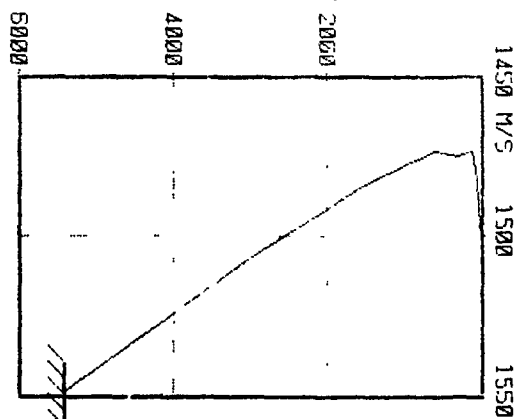
DB LOSS



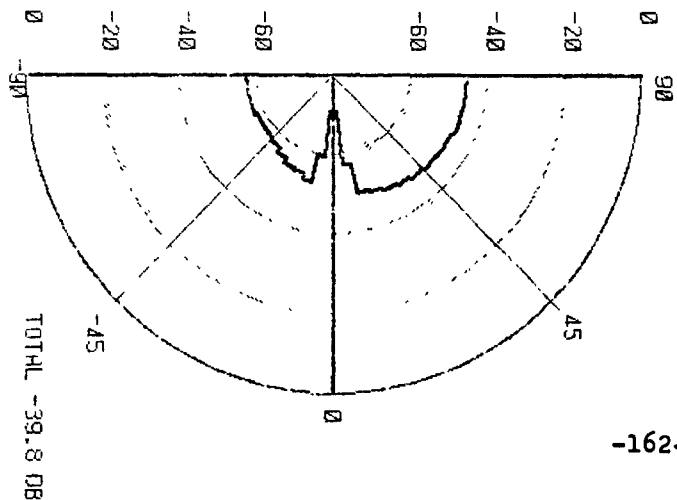
ARRIVAL ANGLE



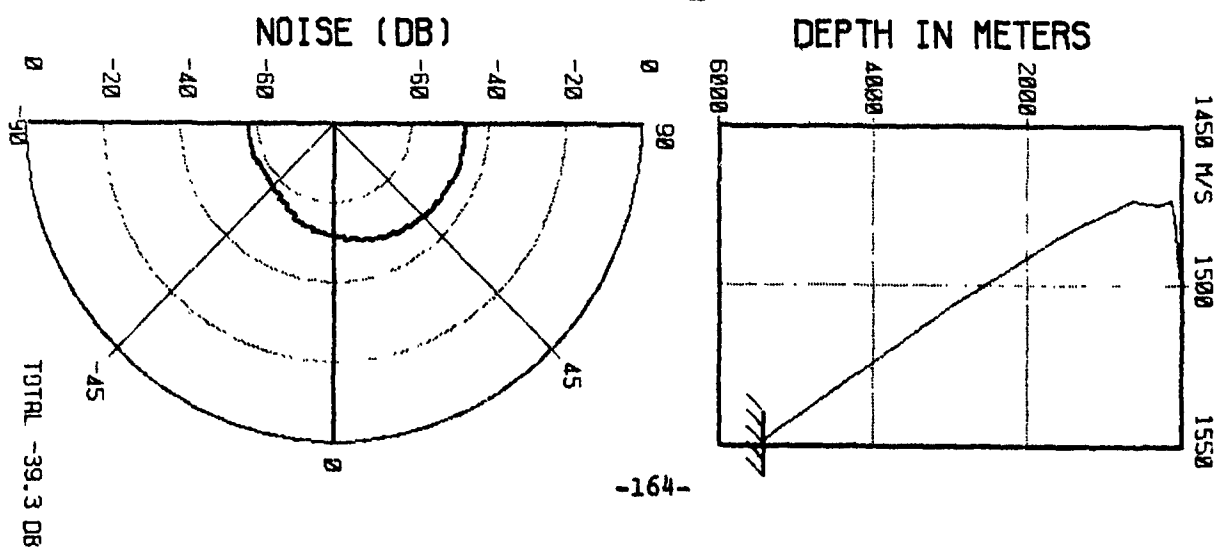
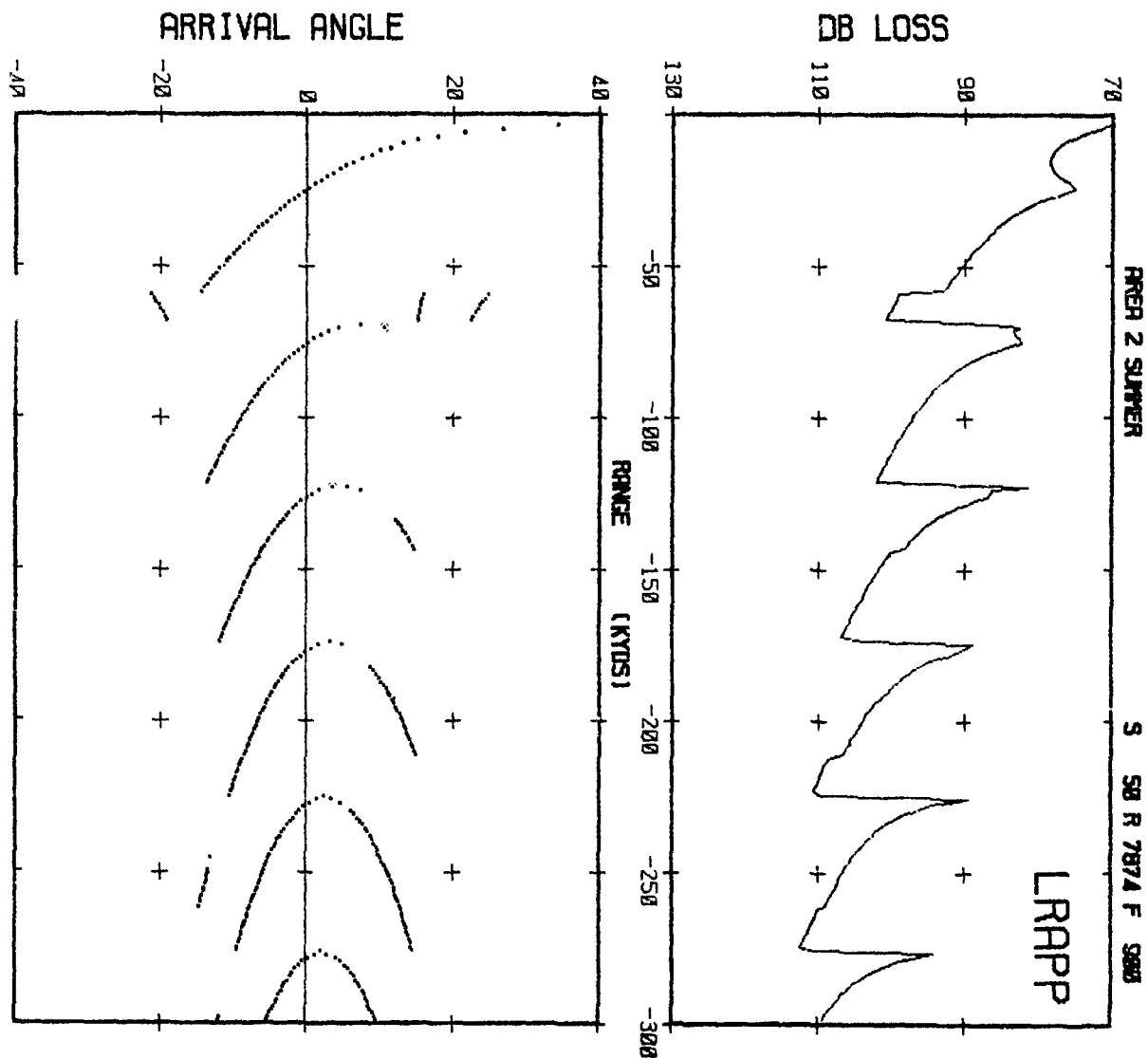
DEPTH IN METERS

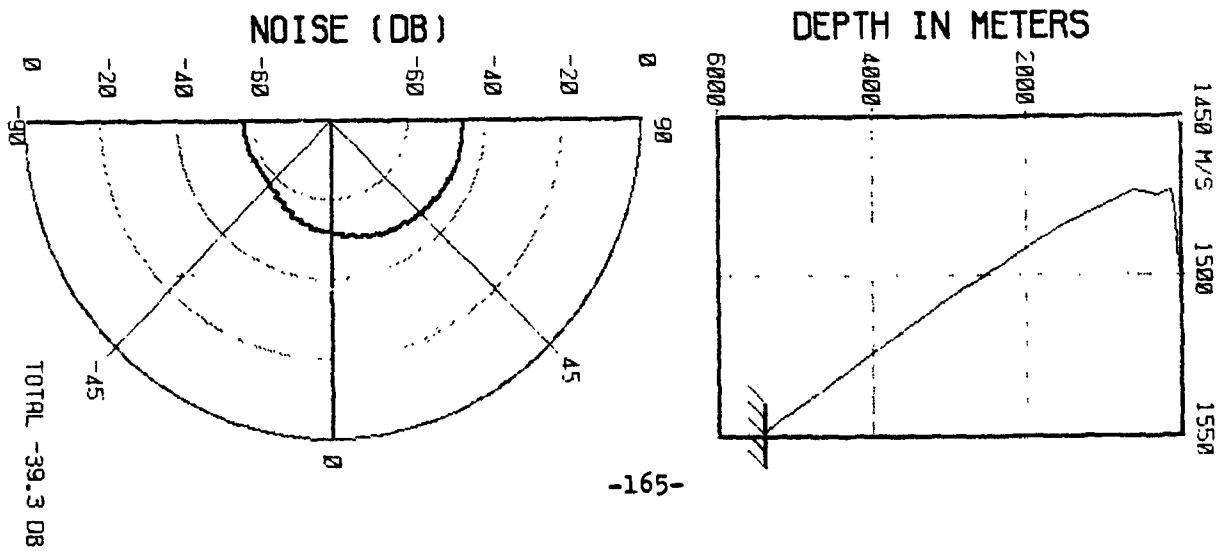
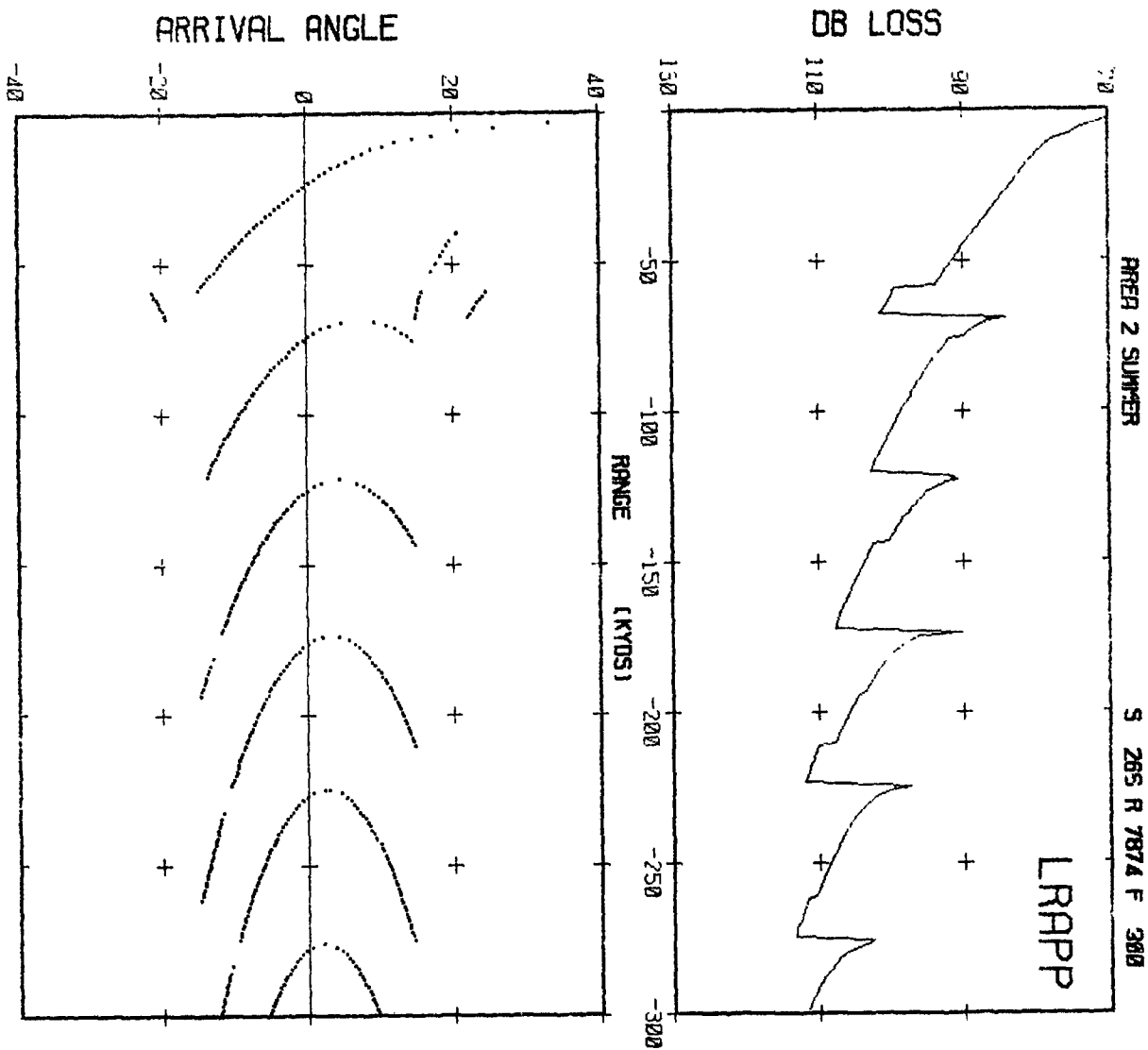


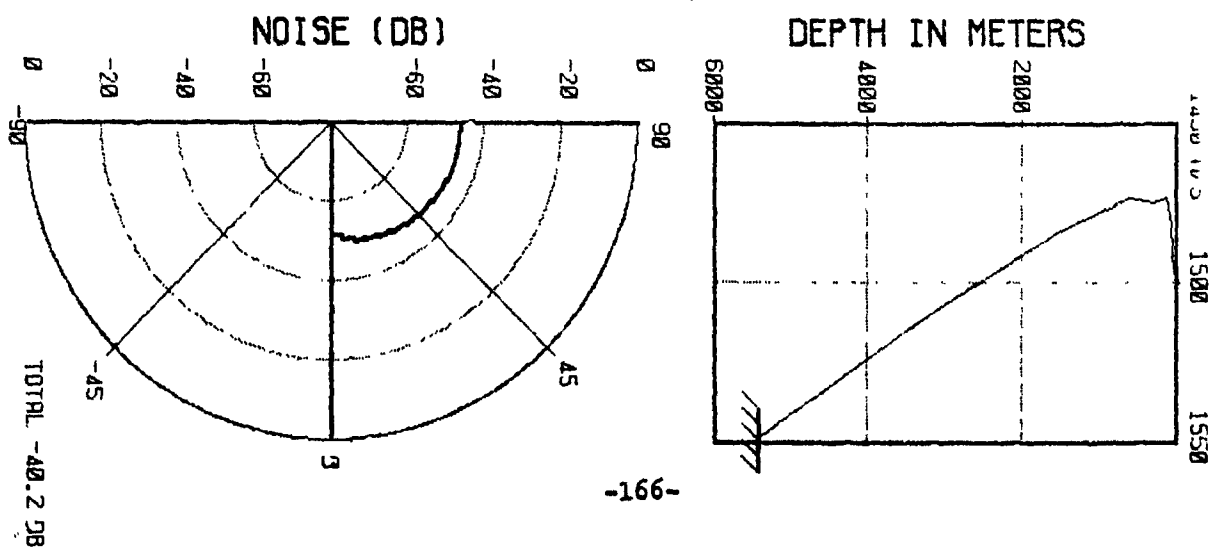
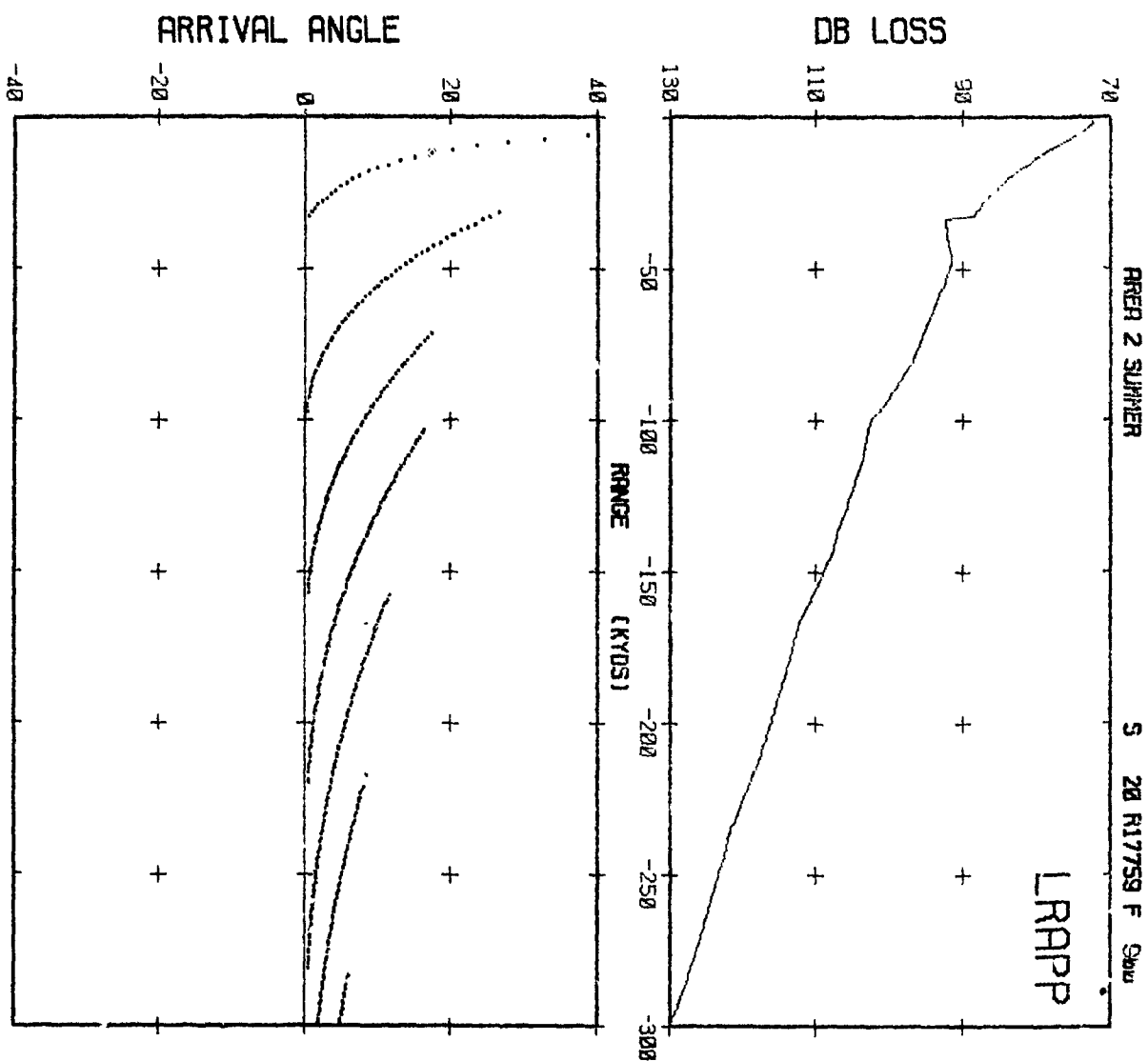
NOISE (DB)









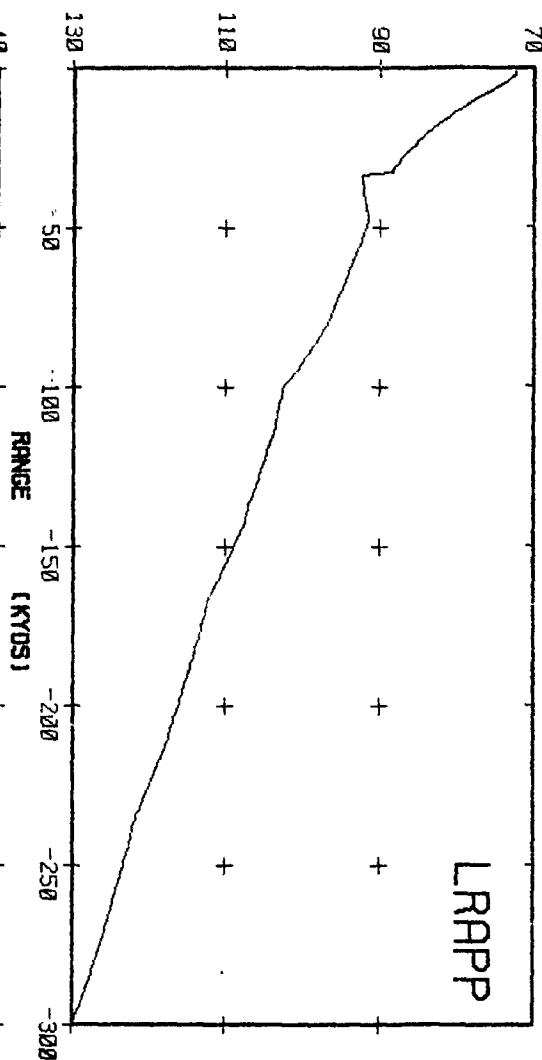


AREA 2 SUMMER

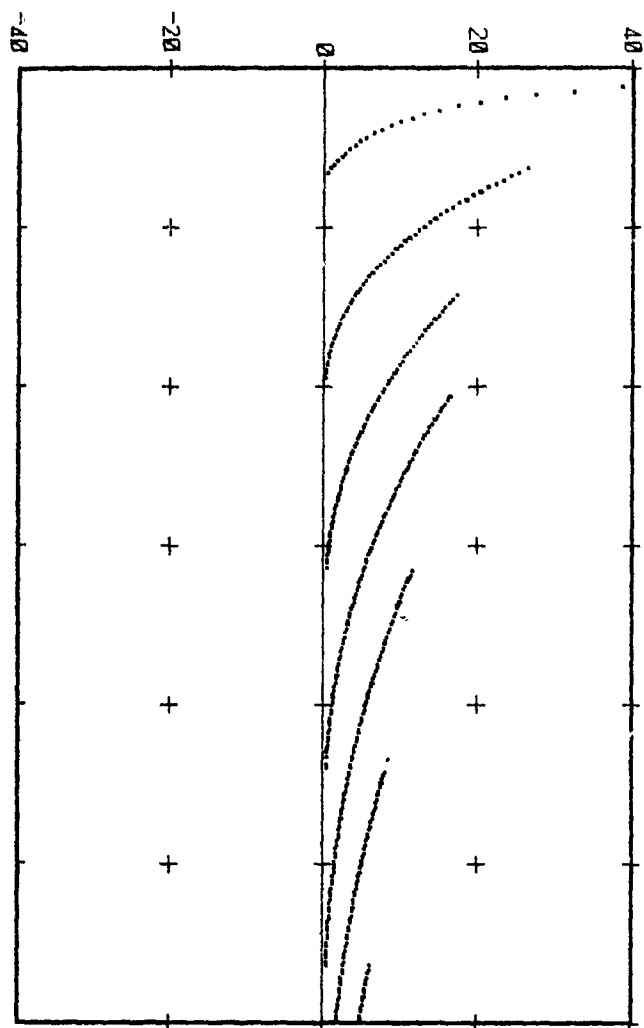
S 50 R17759 F 900

LRAPP

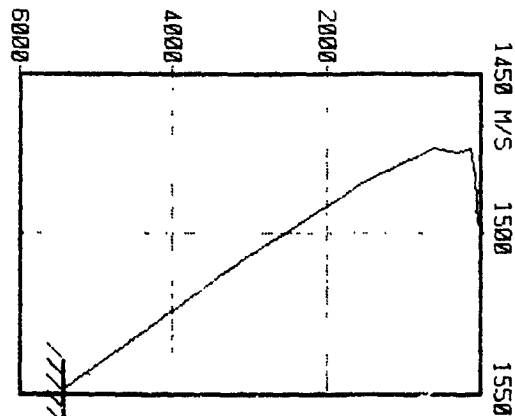
DB LOSS



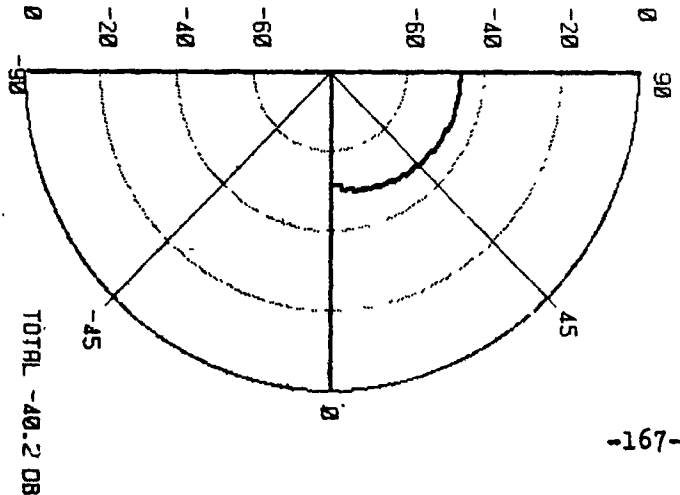
ARRIVAL ANGLE



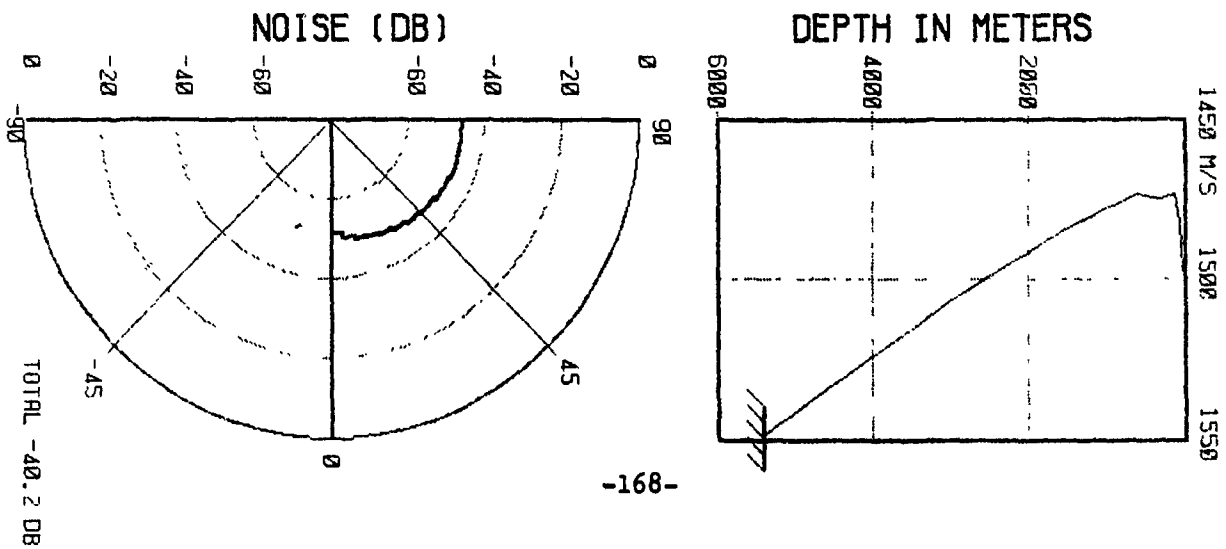
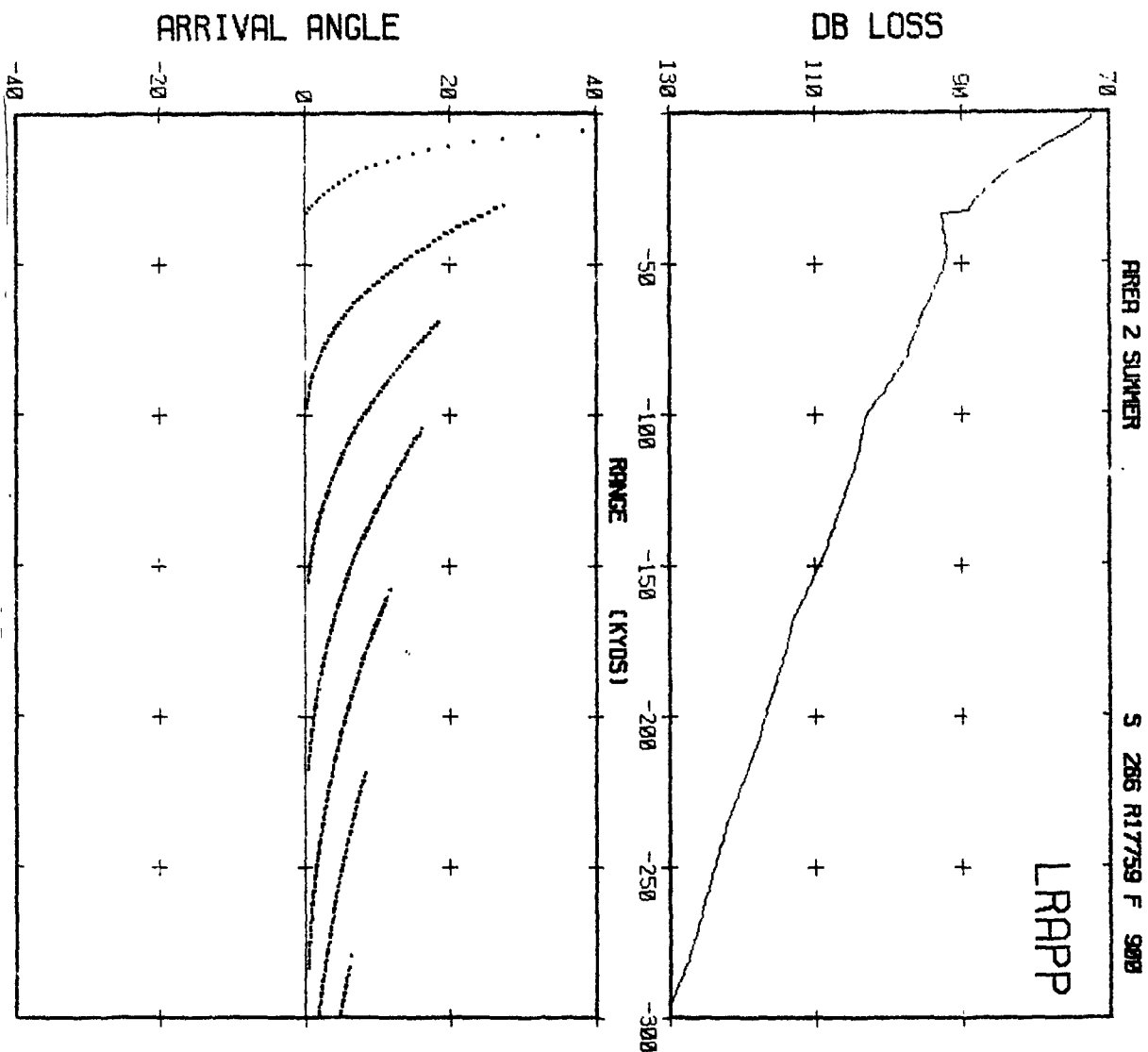
DEPTH IN METERS



NOISE (DB)





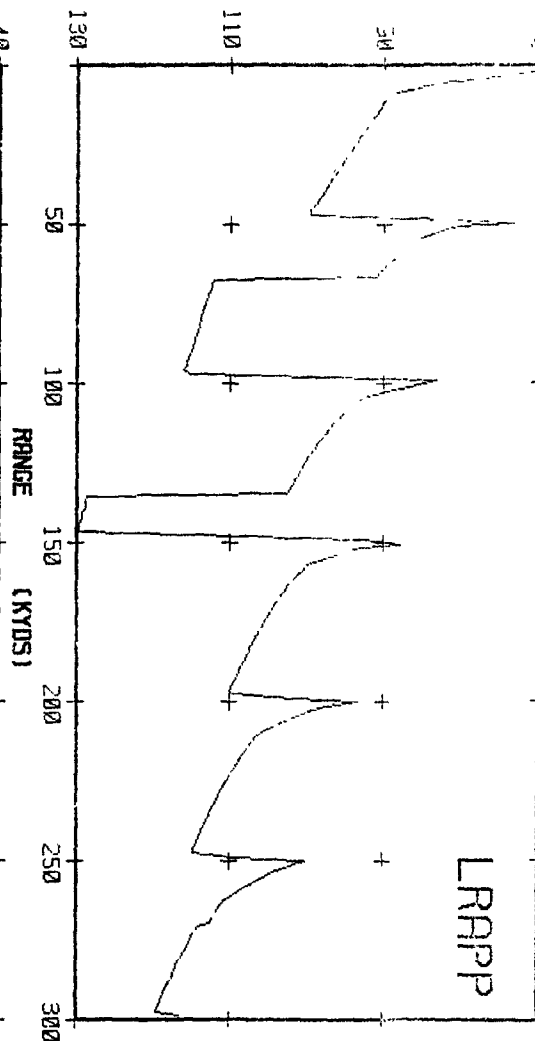


RIER 2 SUPHER

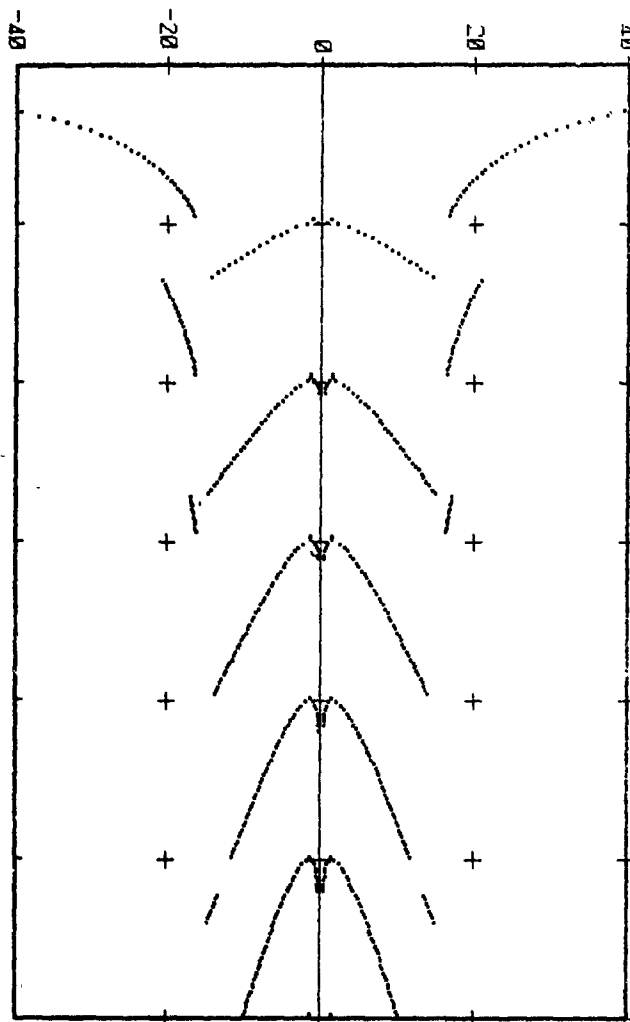
S 29 R 60 F 1200

LRAPP

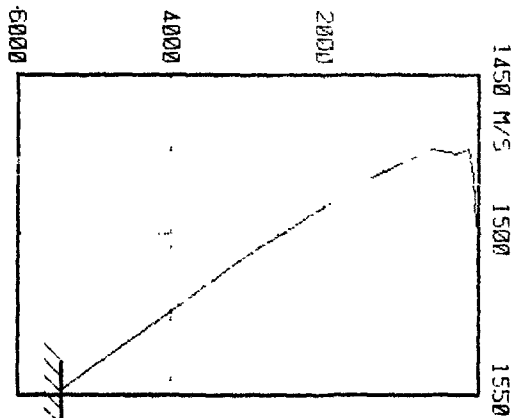
DB LOSS



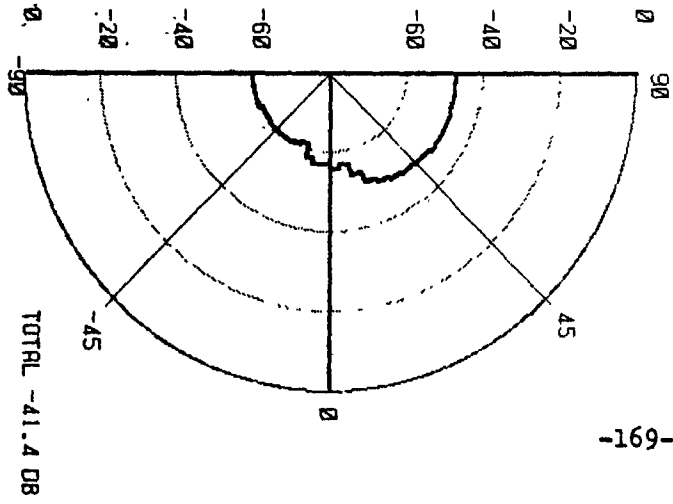
ARRIVAL ANGLE

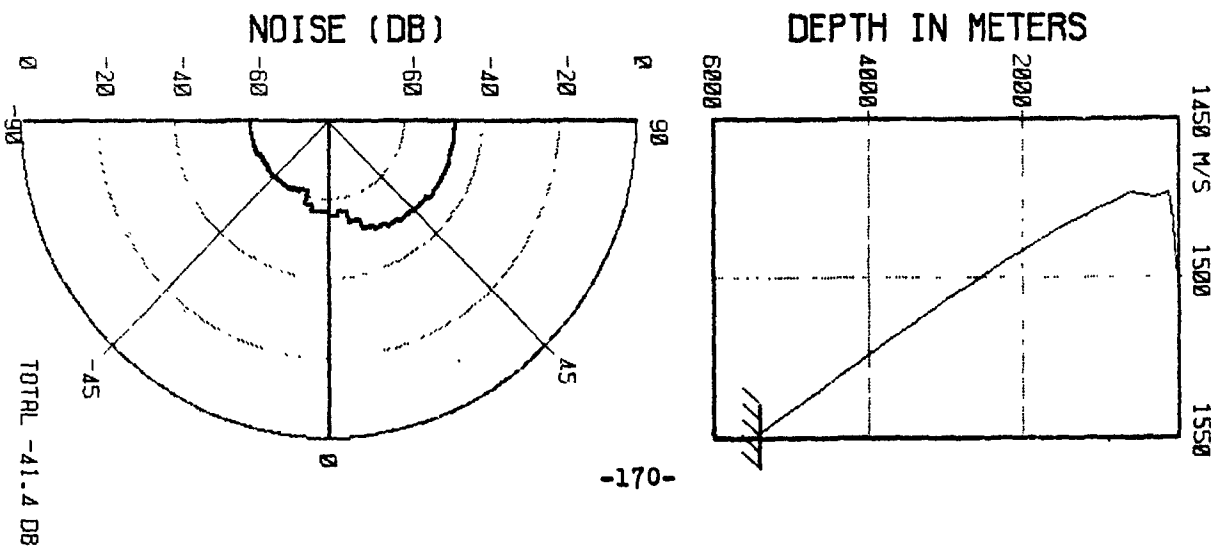
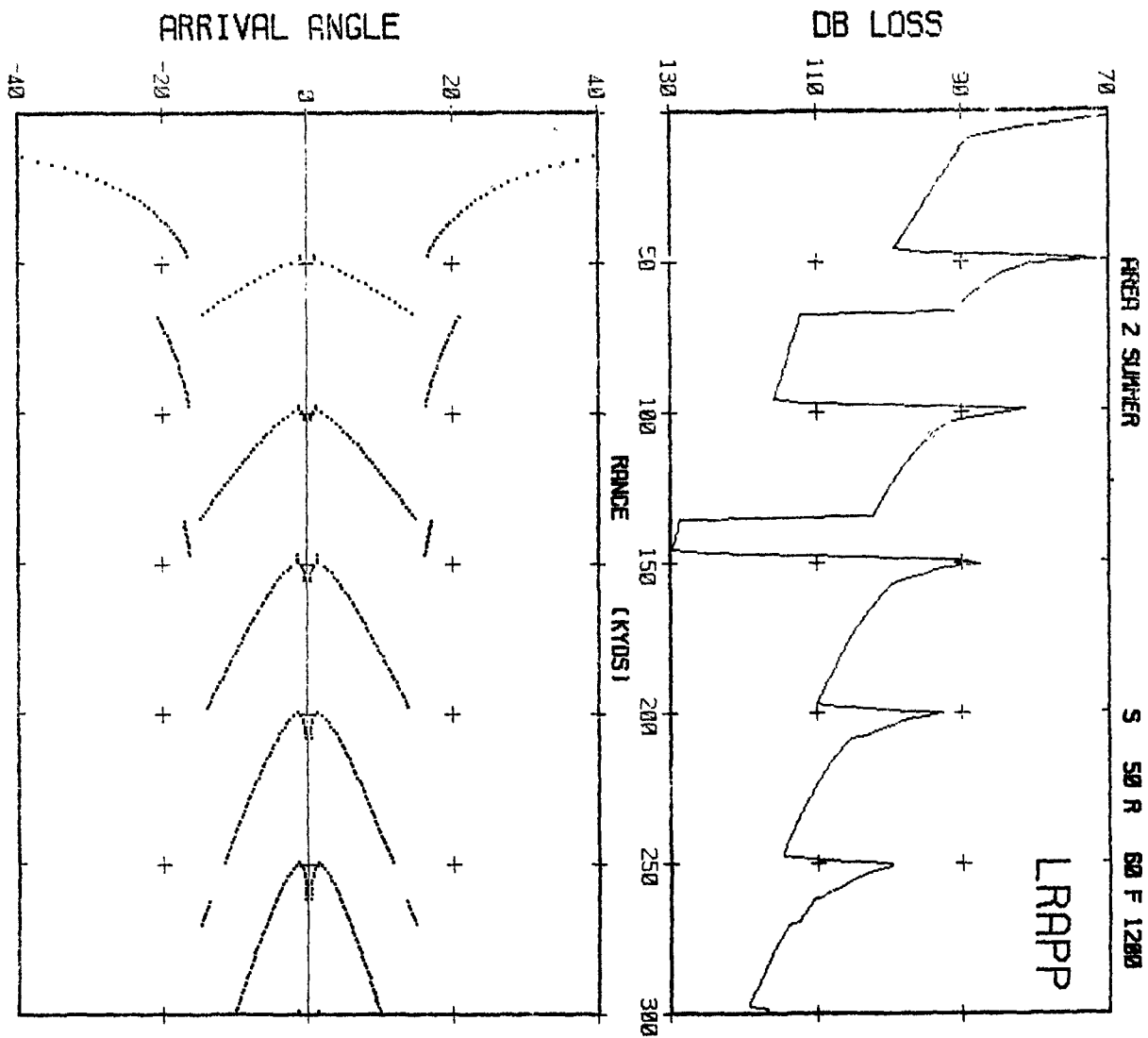


DEPTH IN METERS



NOISE (DB)





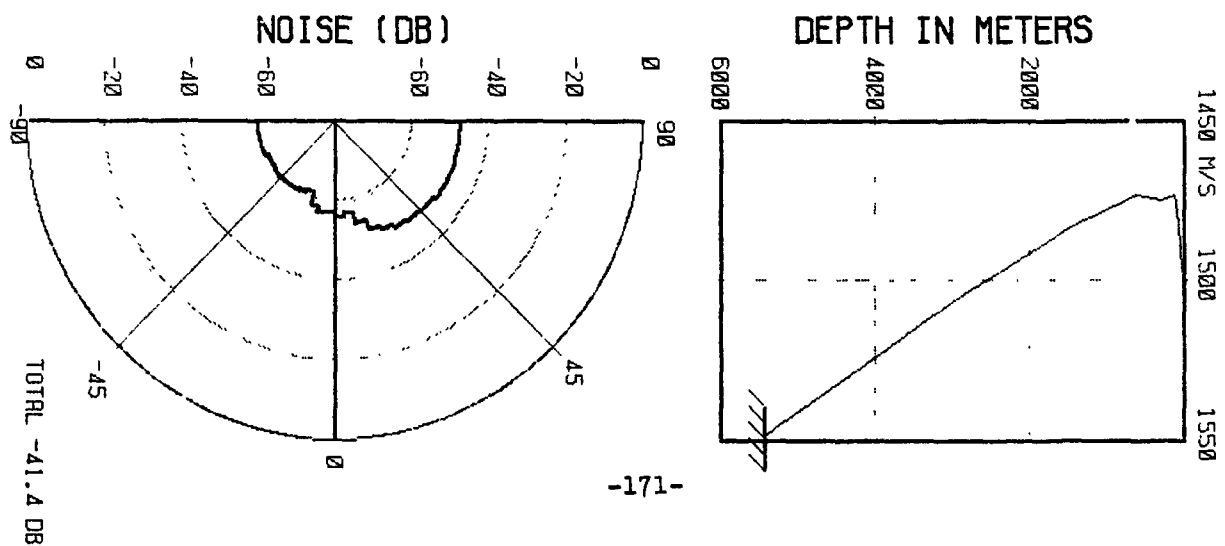
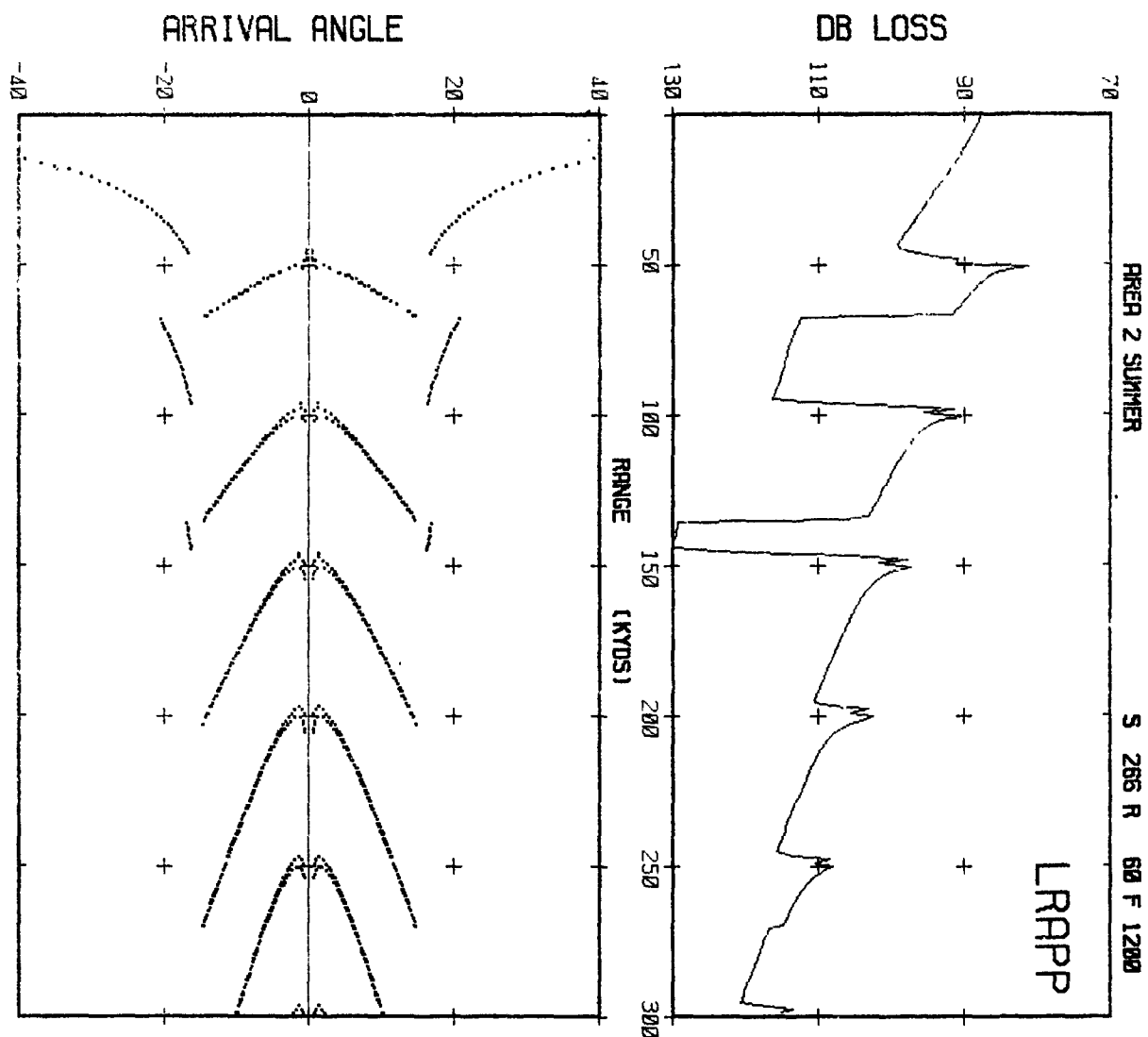
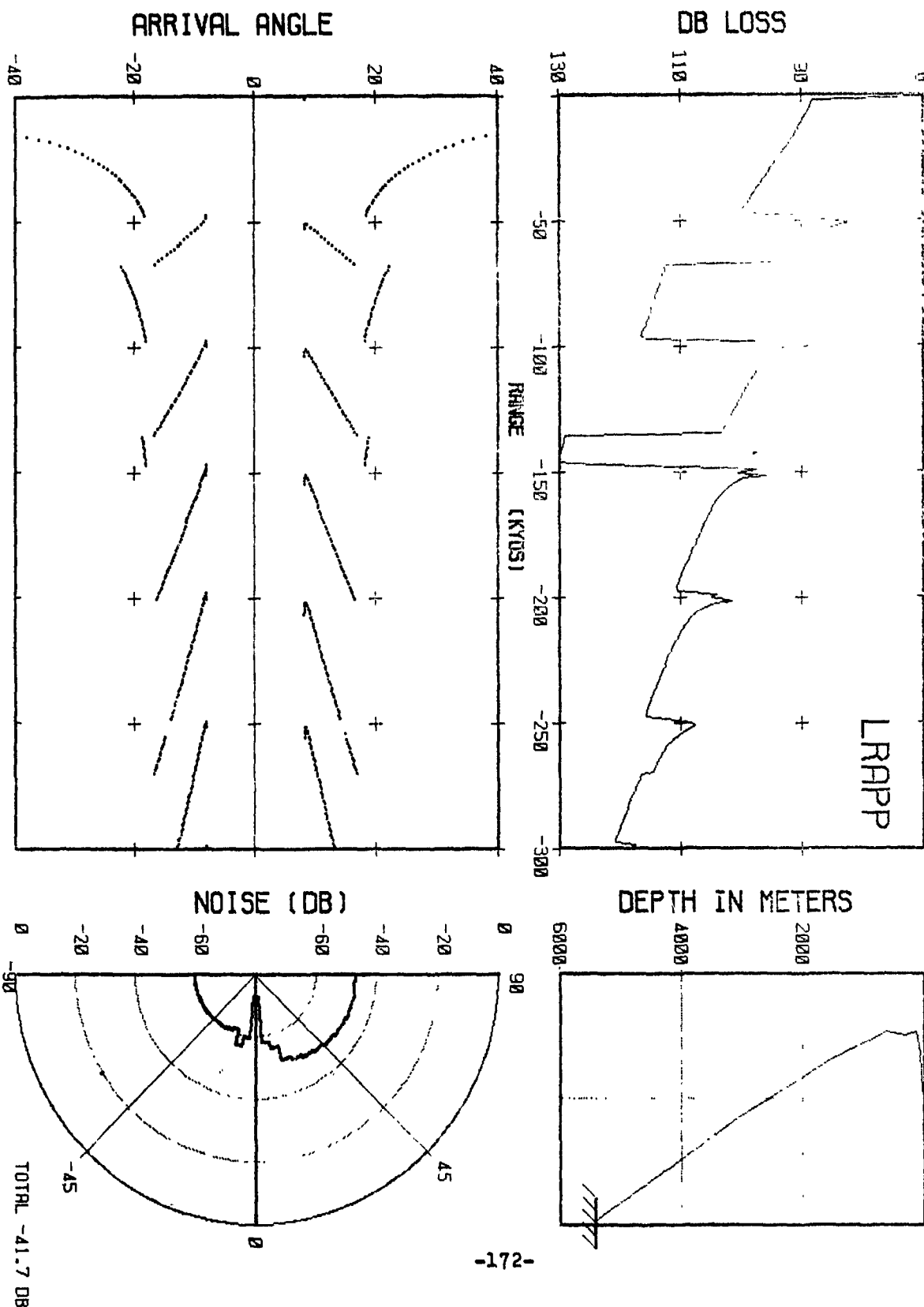
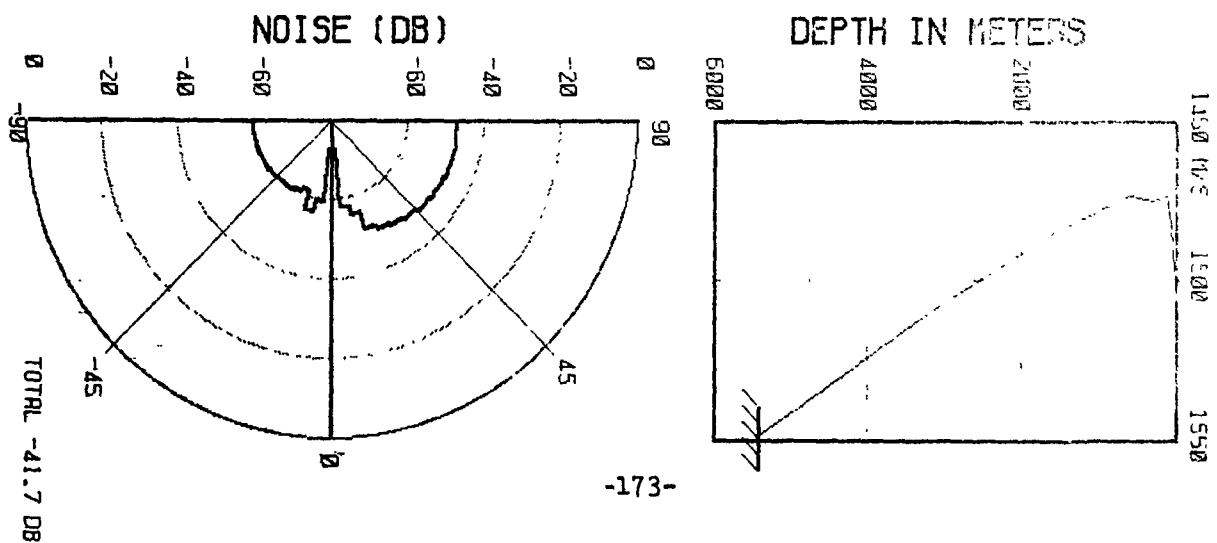
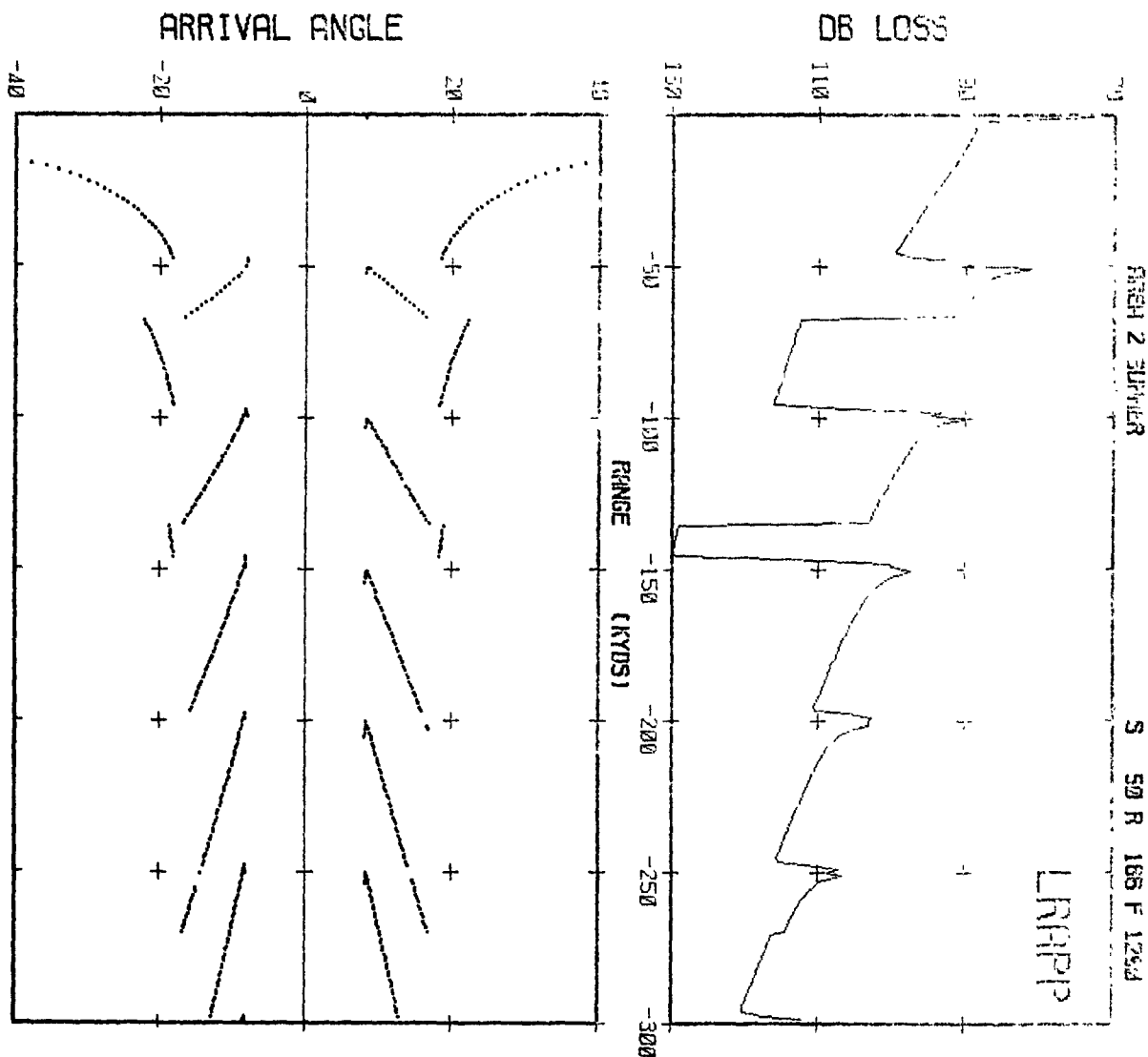


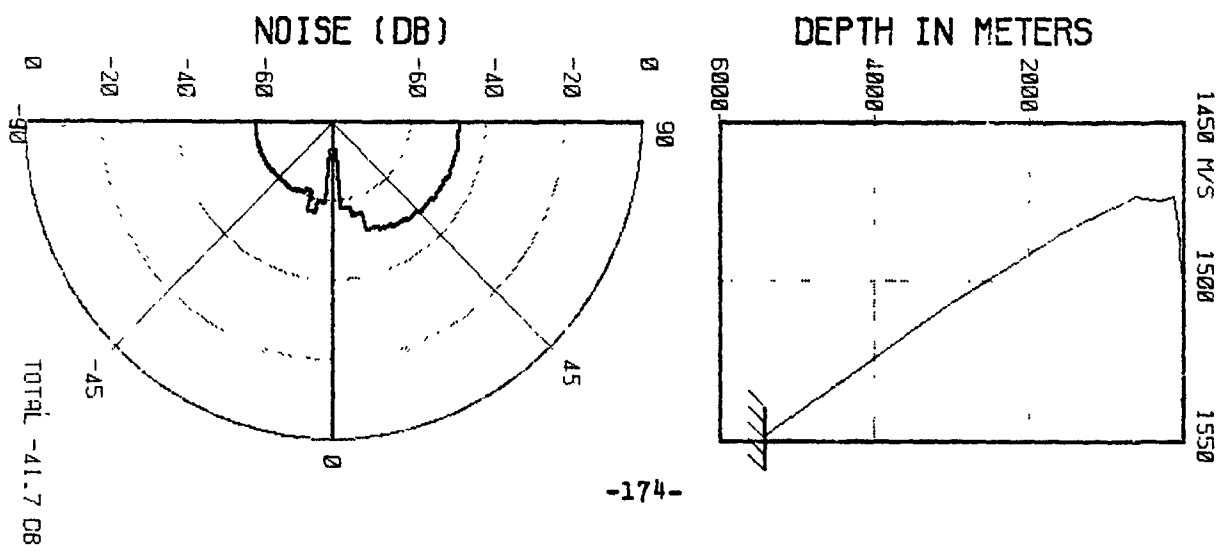
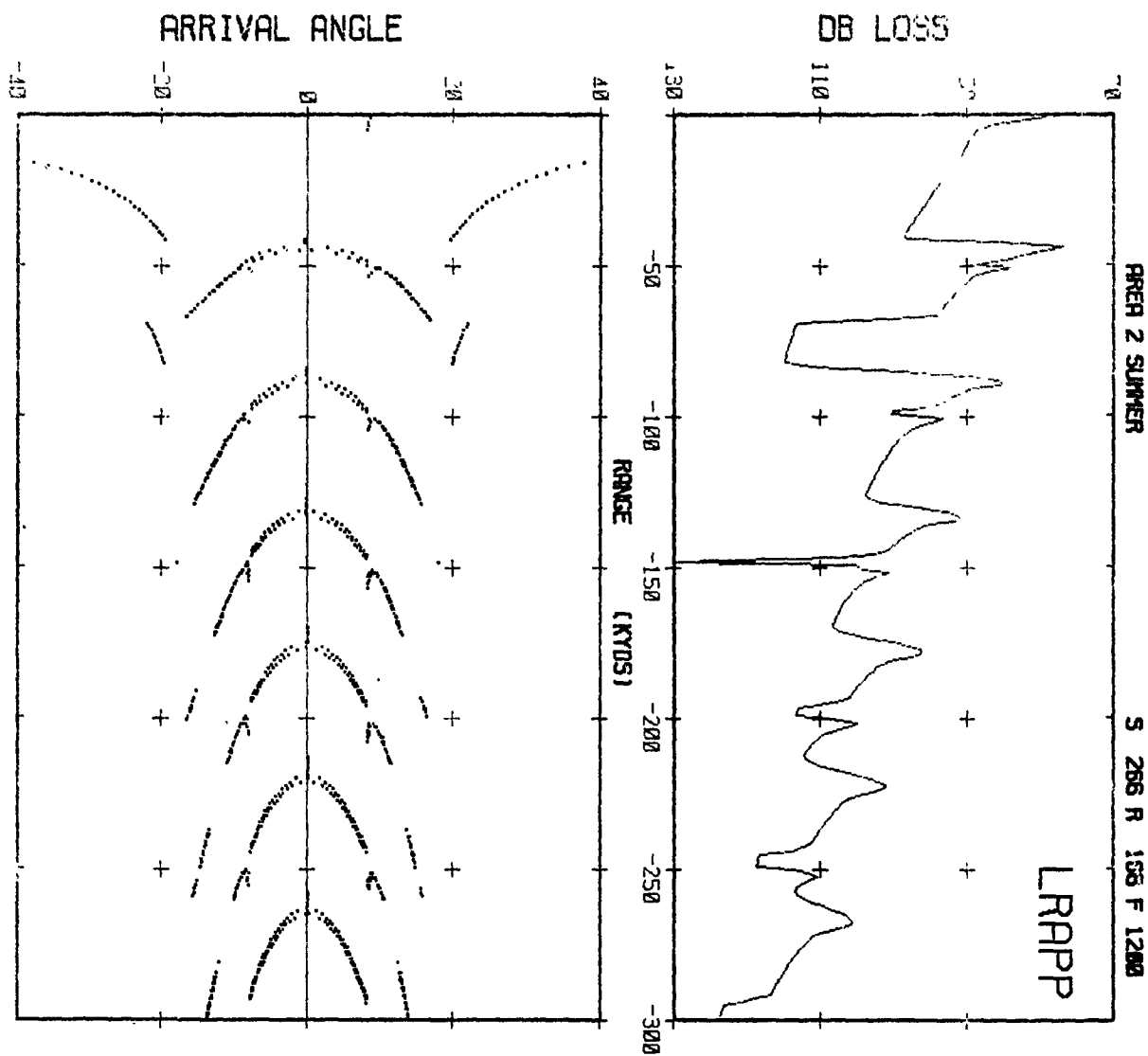
FIGURE 2 SUMMER

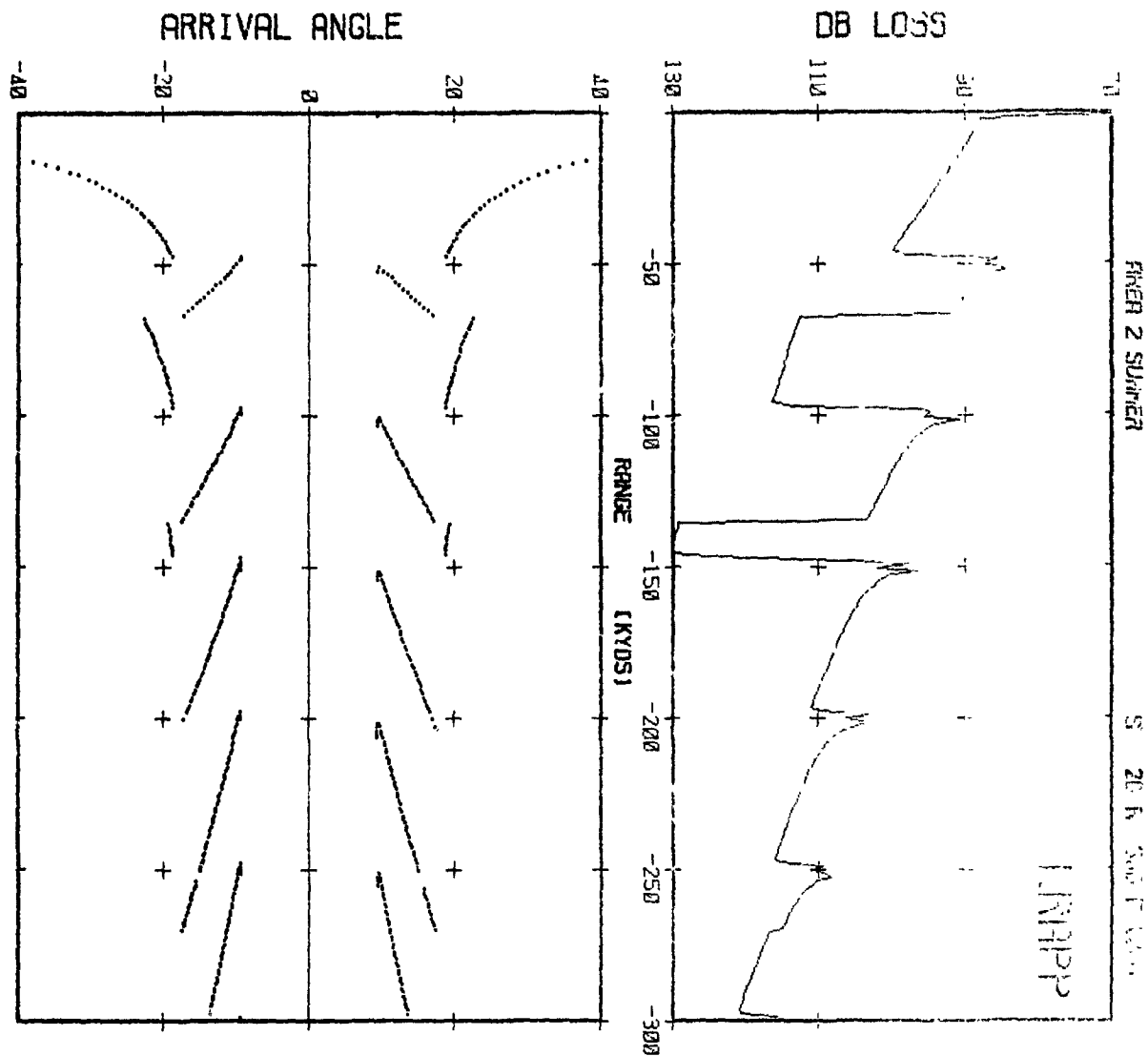
S 20 R 166 F 1200

1450 M/S 1500 1550

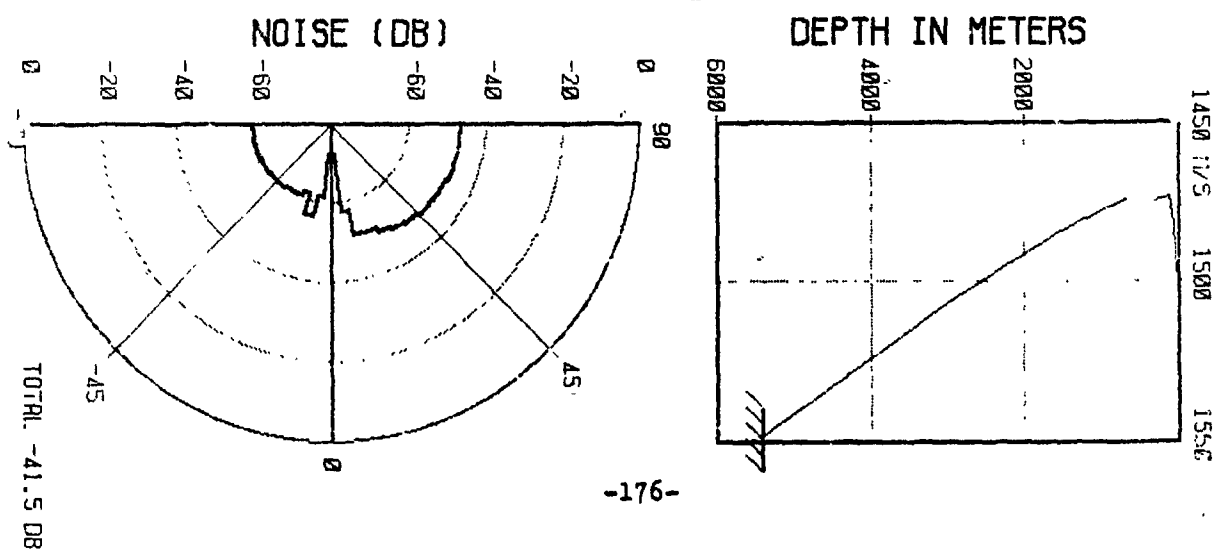
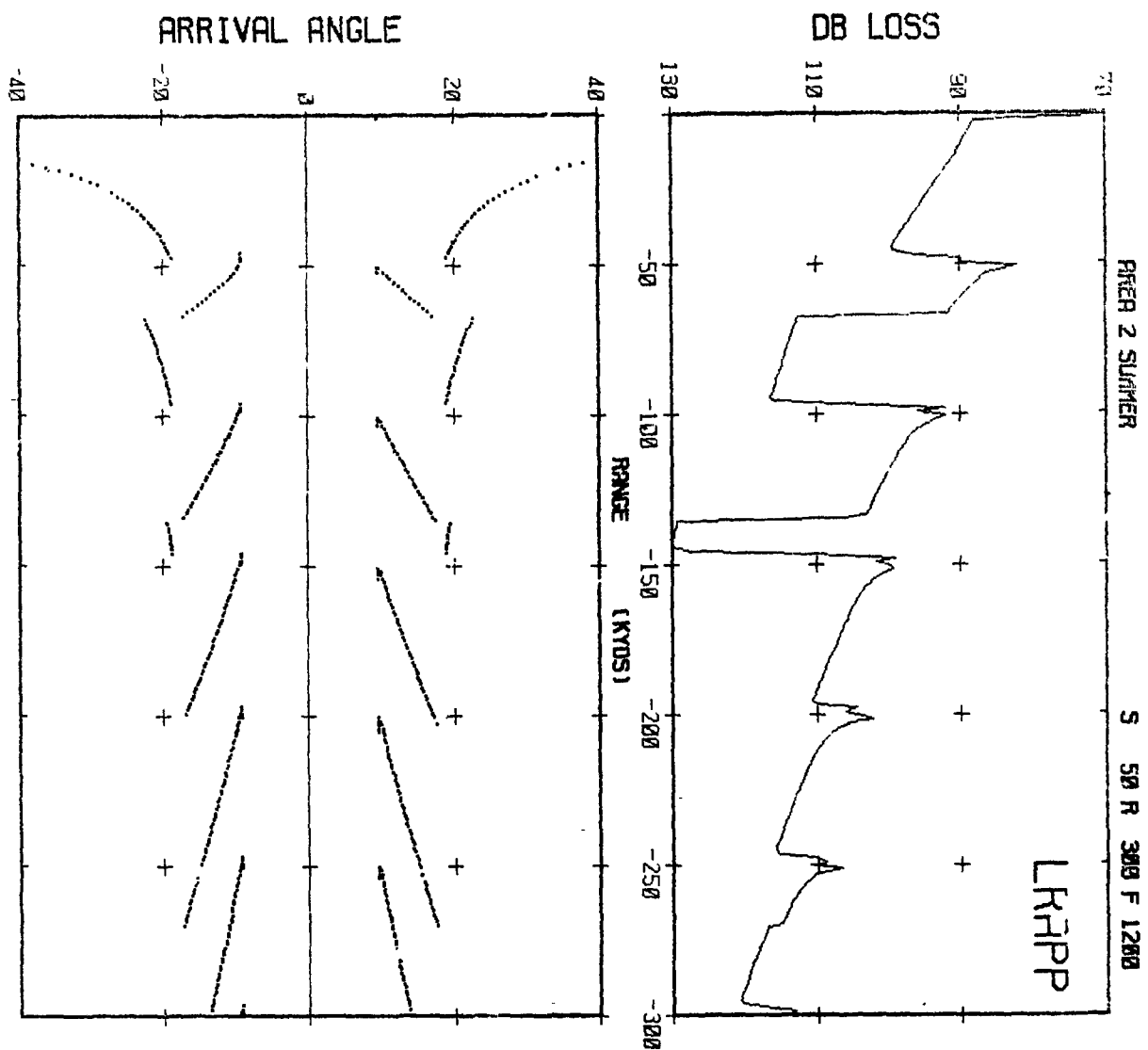


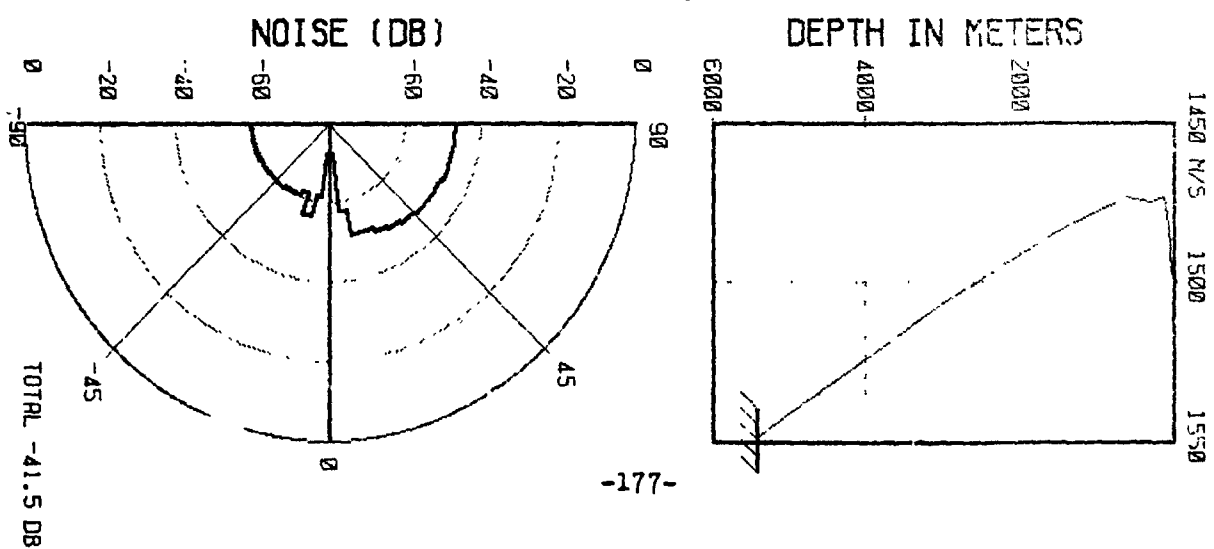
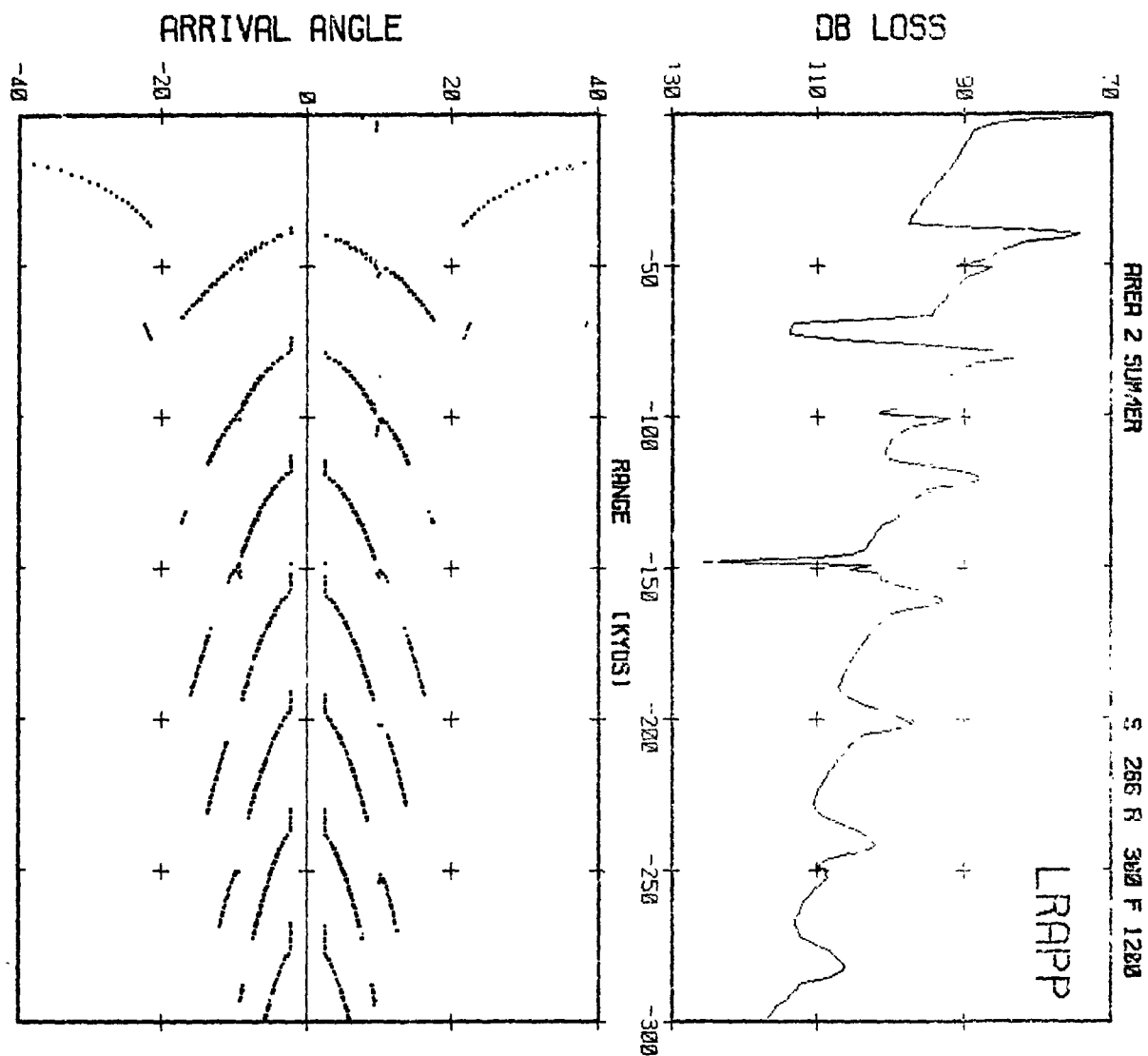












-177-

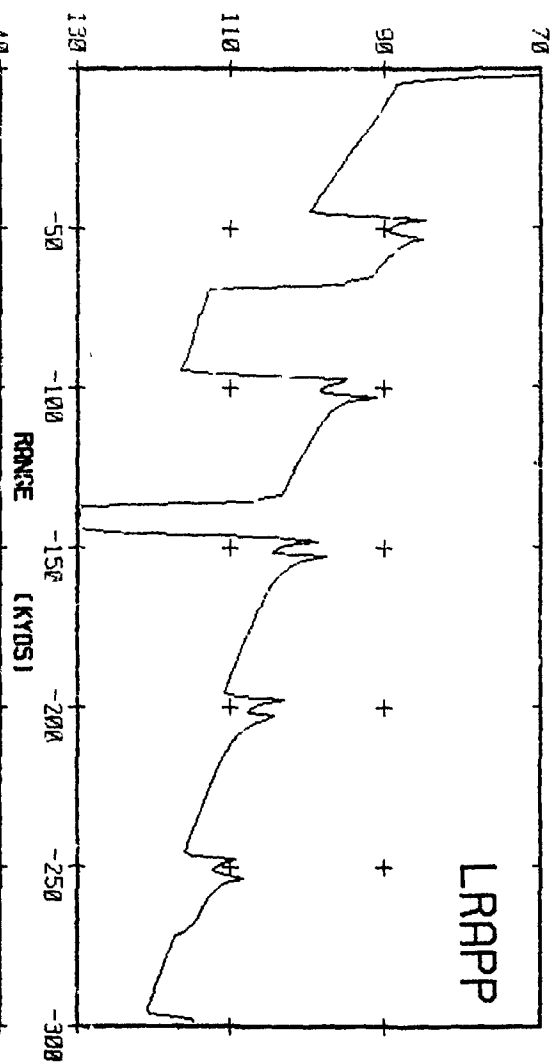
Copy available to DDC does not  
permit fully legible reproduction

PRER 2 SUMMER

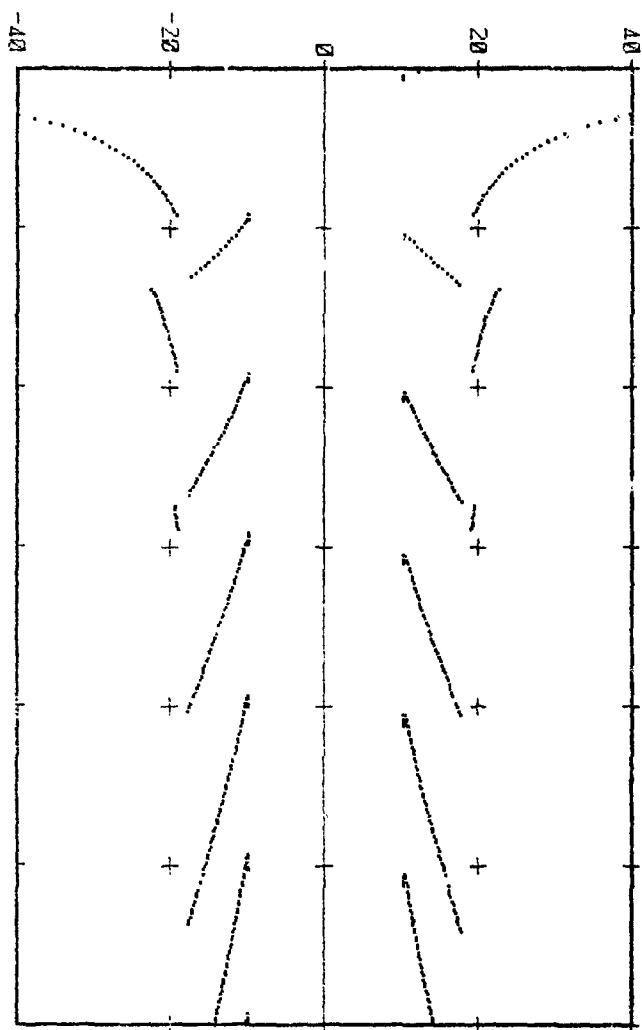
S 20 R 1000 F 1200

LRAPP

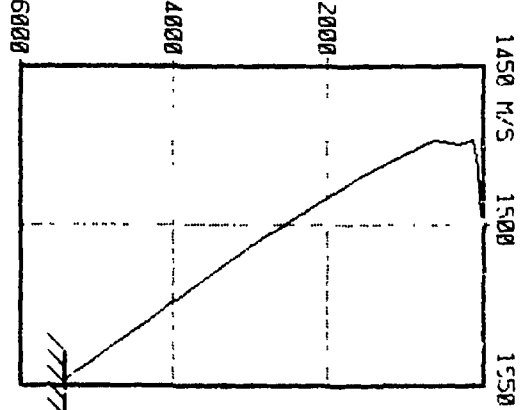
DB LOSS



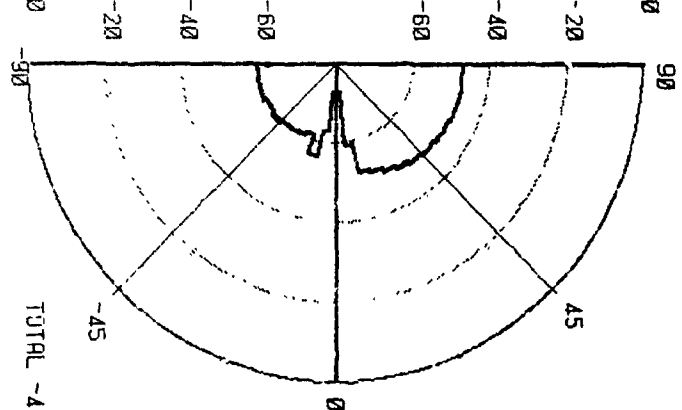
ARRIVAL ANGLE



DEPTH IN METERS



NOISE (DB)



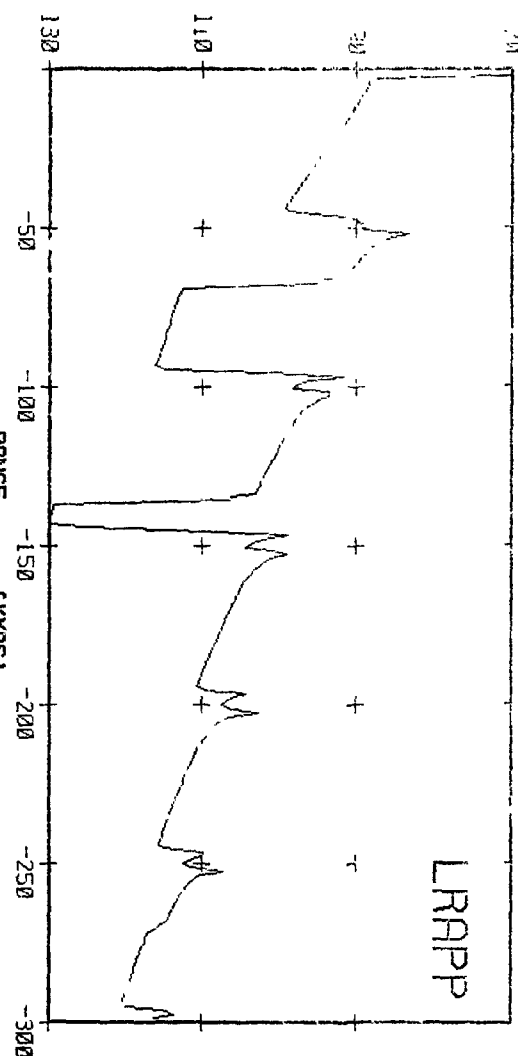
TOTAL -41.6 DB

AREA 2 SUMMER

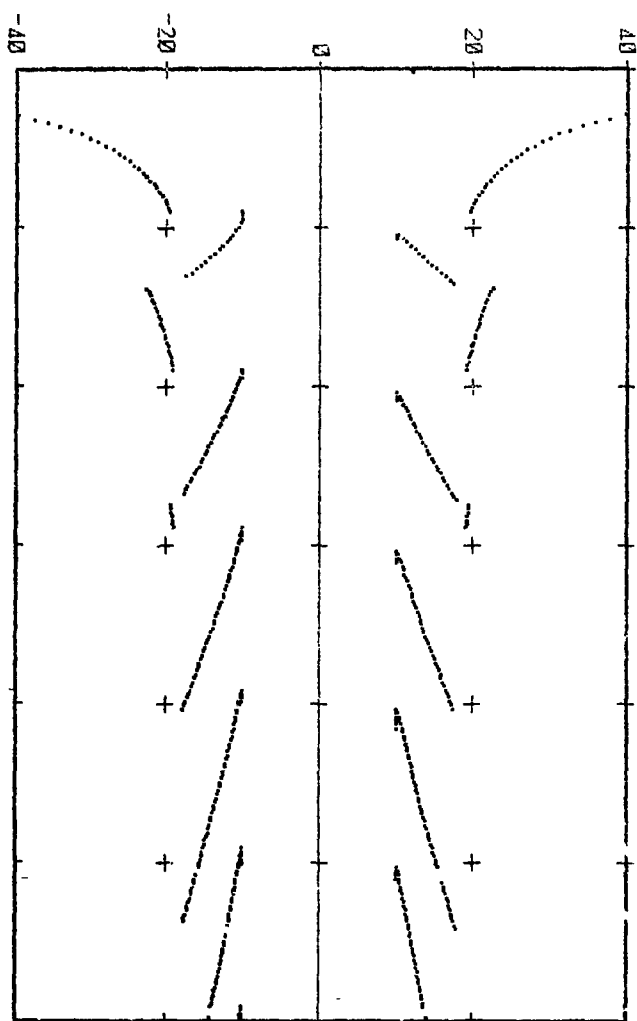
S 50 R 1000 F 1200

1450 M/S 1500 1550

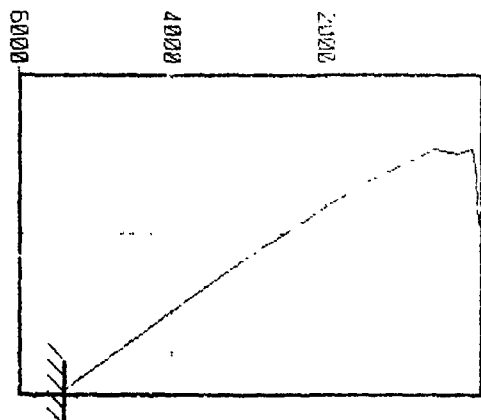
DB LOSS



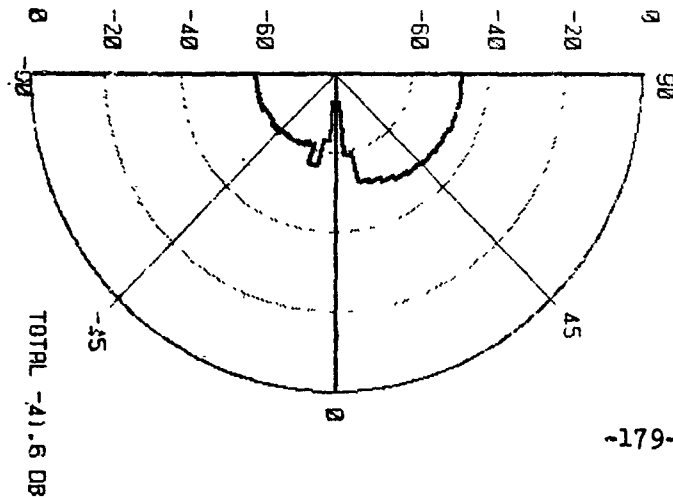
ARRIVAL ANGLE



DEPTH IN METERS



NOISE (DB)

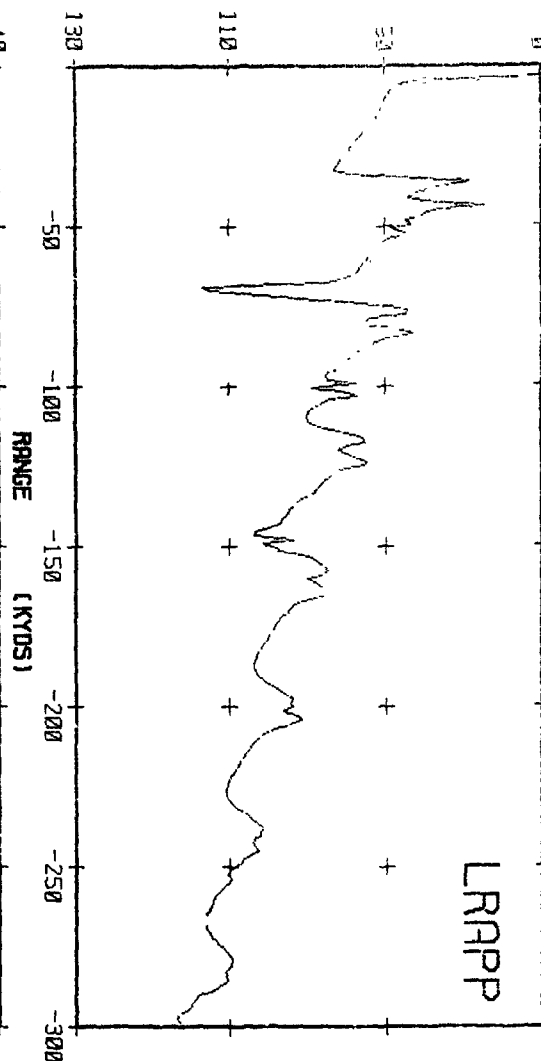


AREA 2 SUMMER

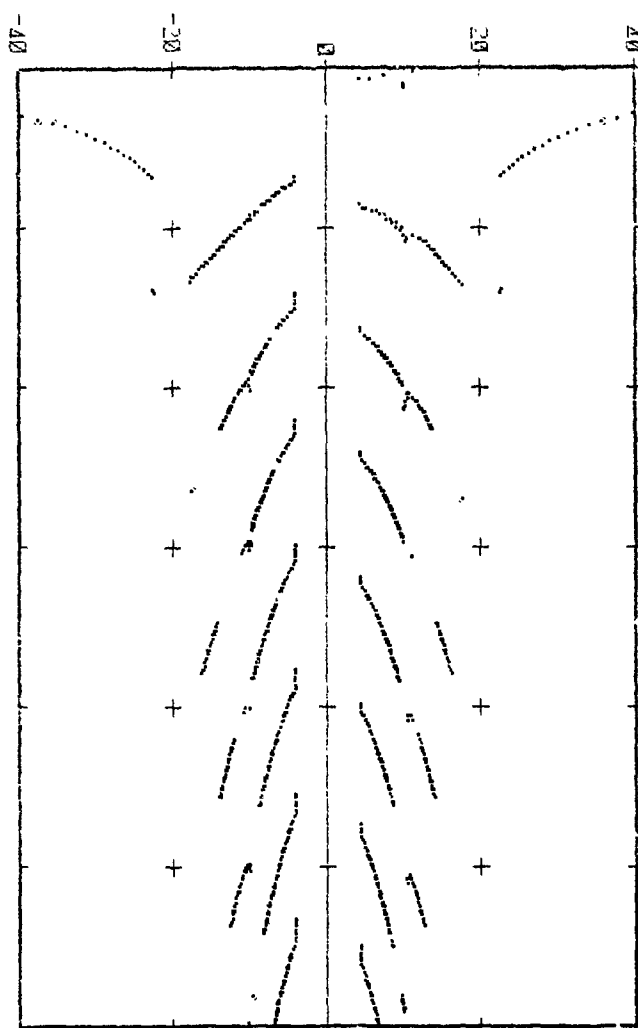
S 266 R 1000 F 1200

LRAPP

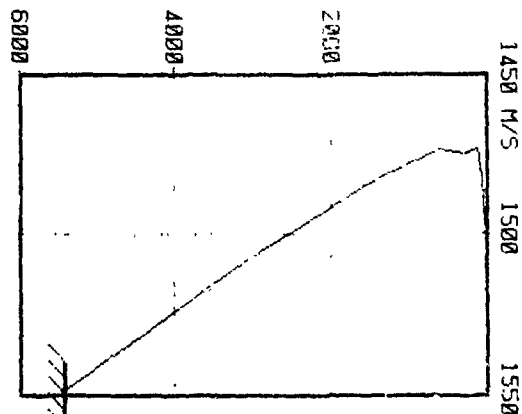
DB LOSS



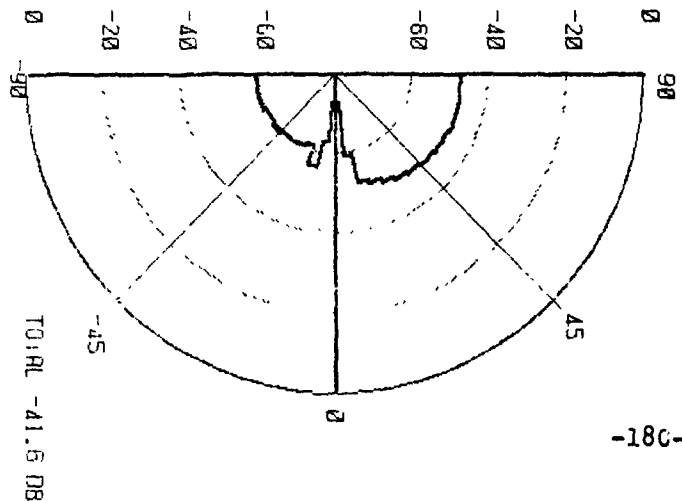
ARRIVAL ANGLE



DEPTH IN METERS



NOISE (DB)



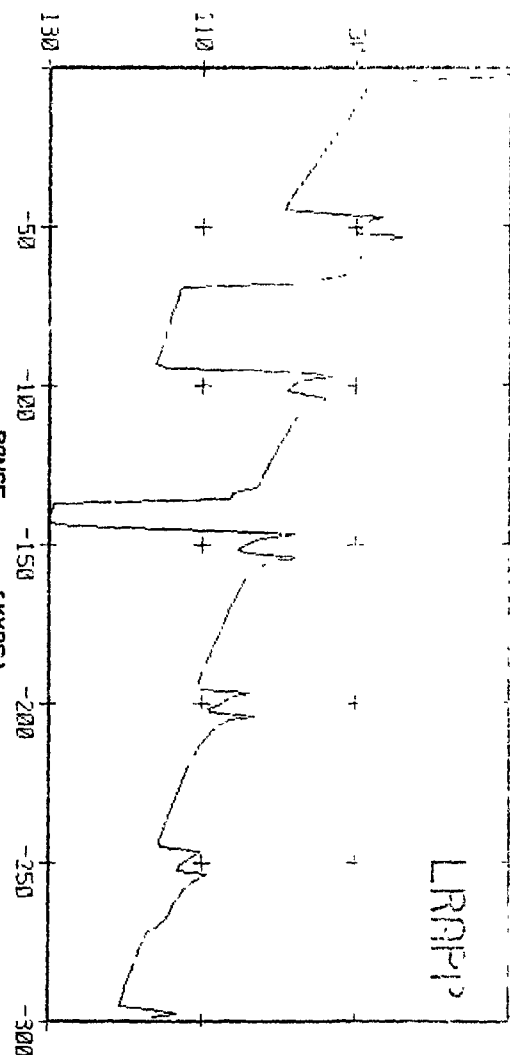
-180-

PREC 2 SLIDER

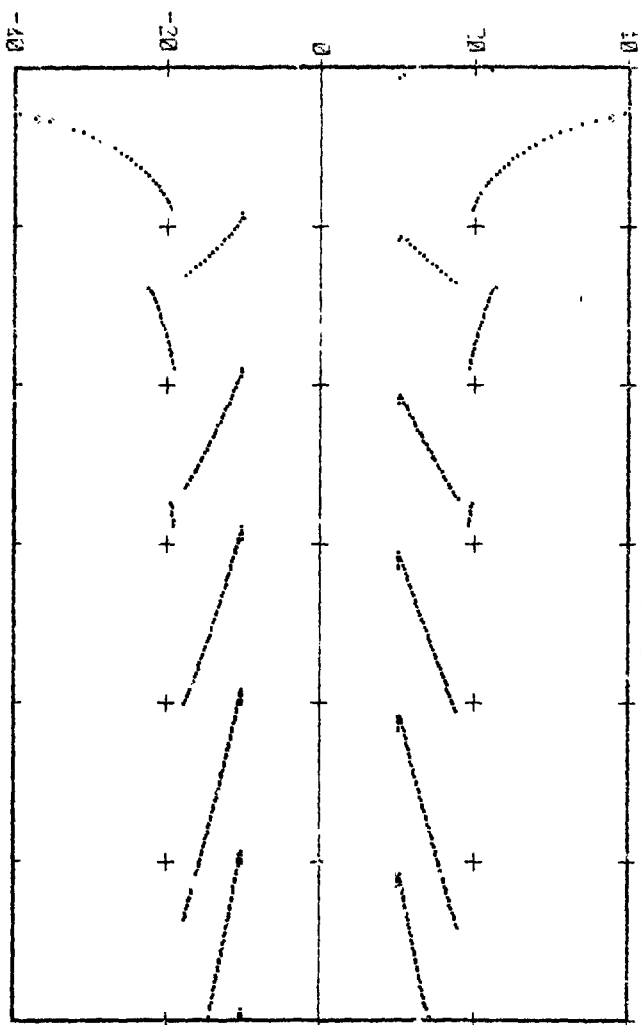
S 29 R 1500 F 1400

1500 11.5 1500 1500

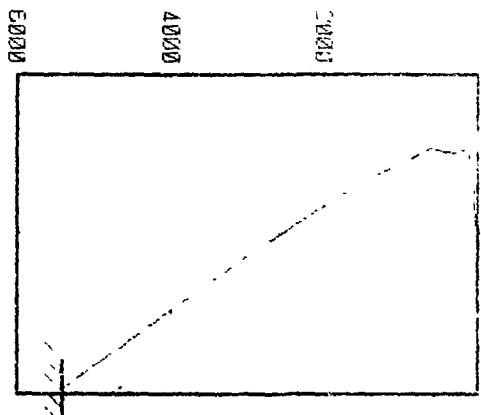
DB LOSS



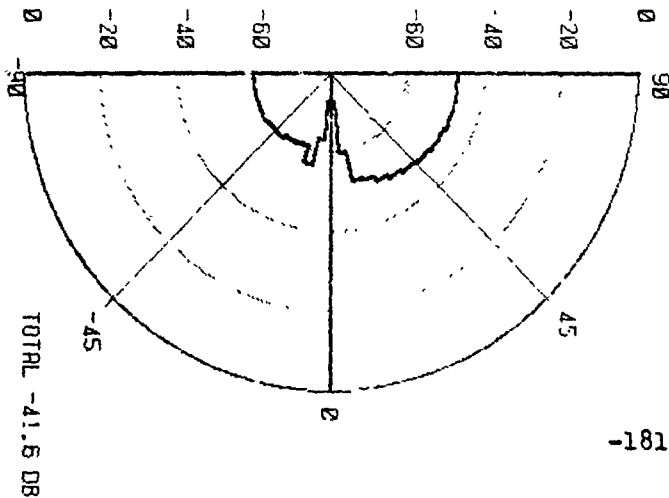
ARRIVAL ANGLE



DEPTH IN METERS



NOISE (DB)



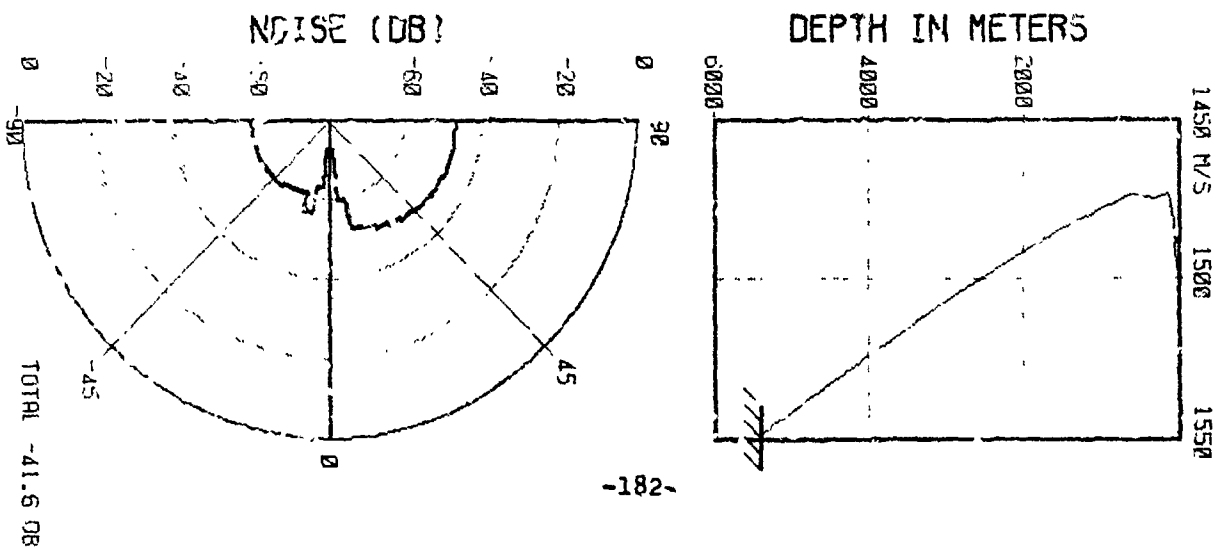
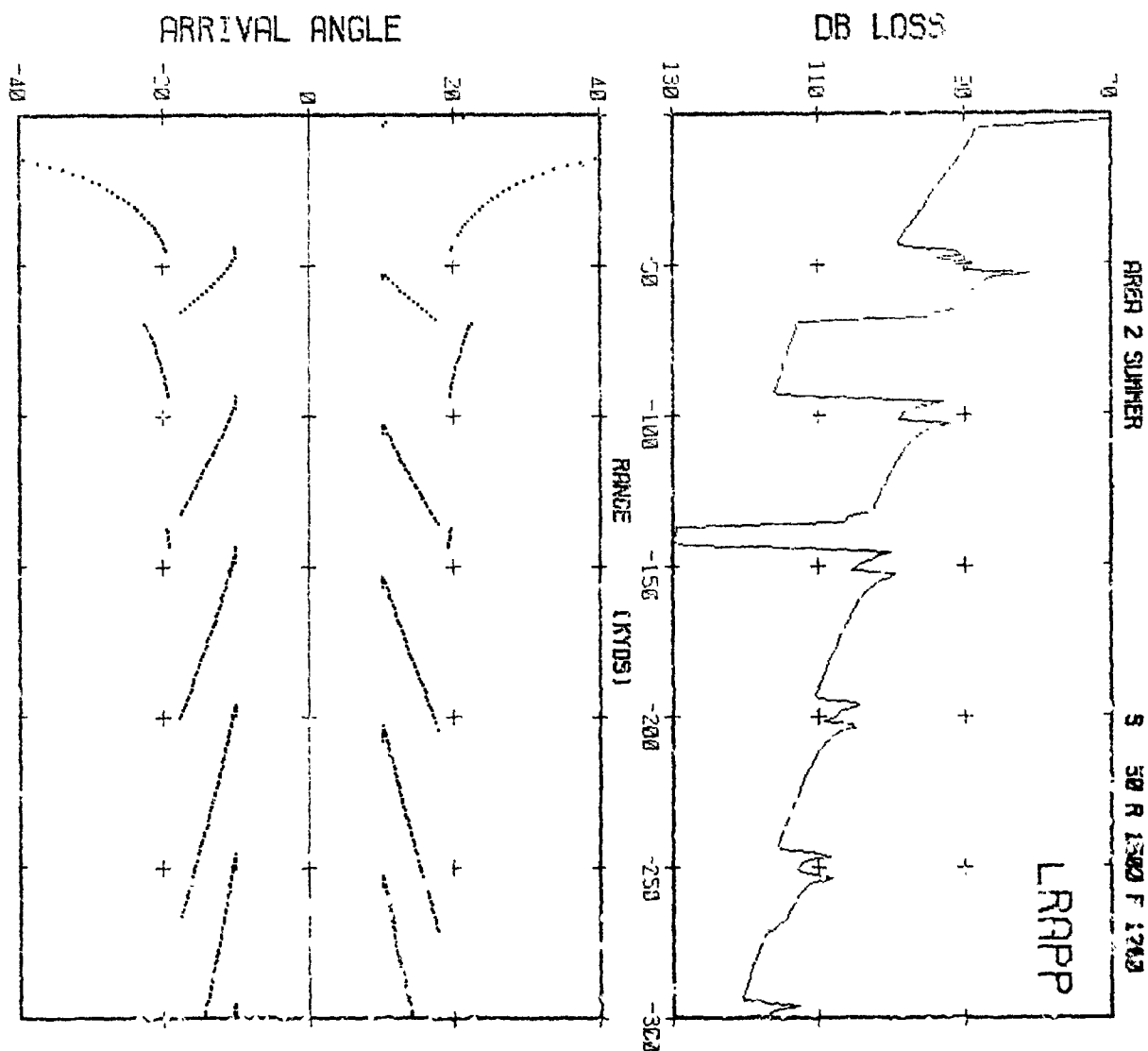
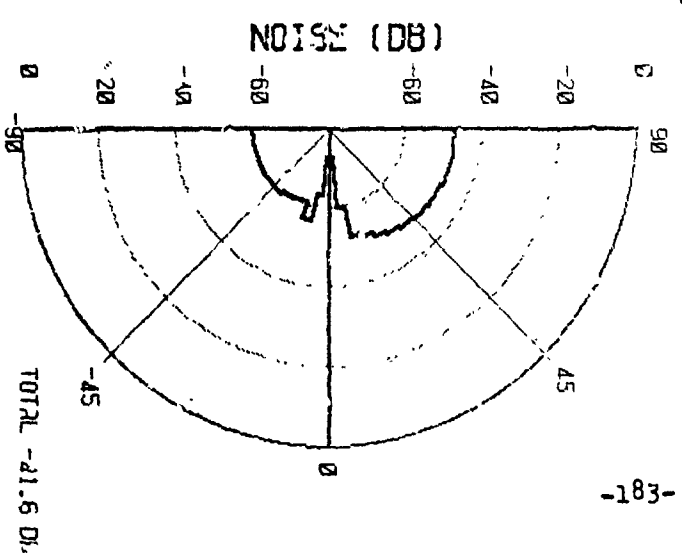
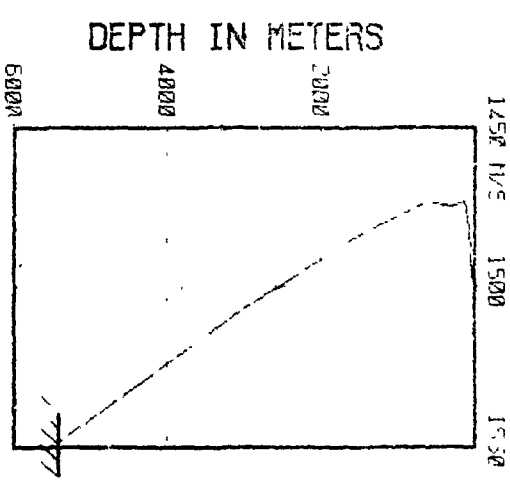
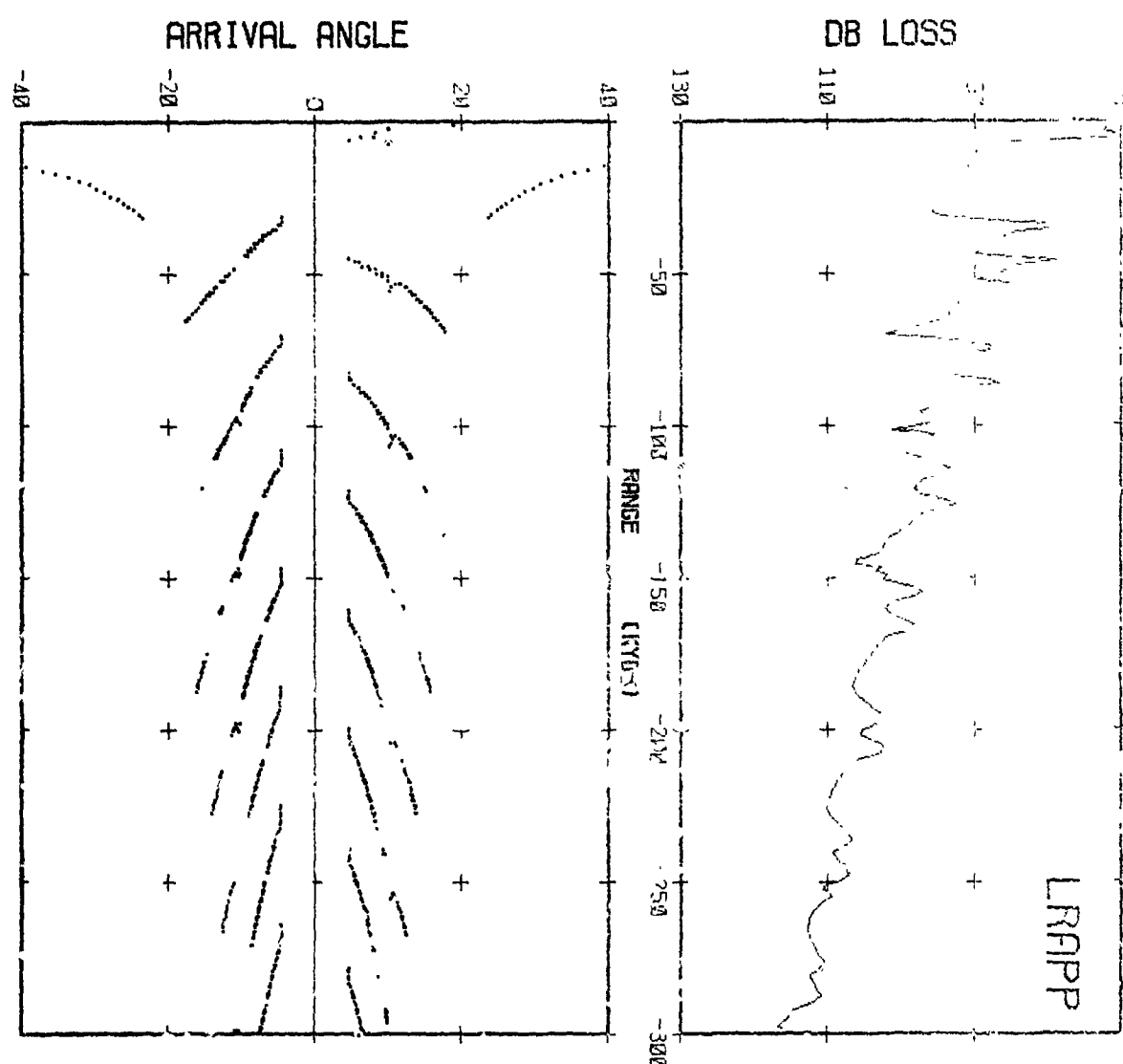


FIGURE 2. UPPER

S 265 R 1500 F 1200



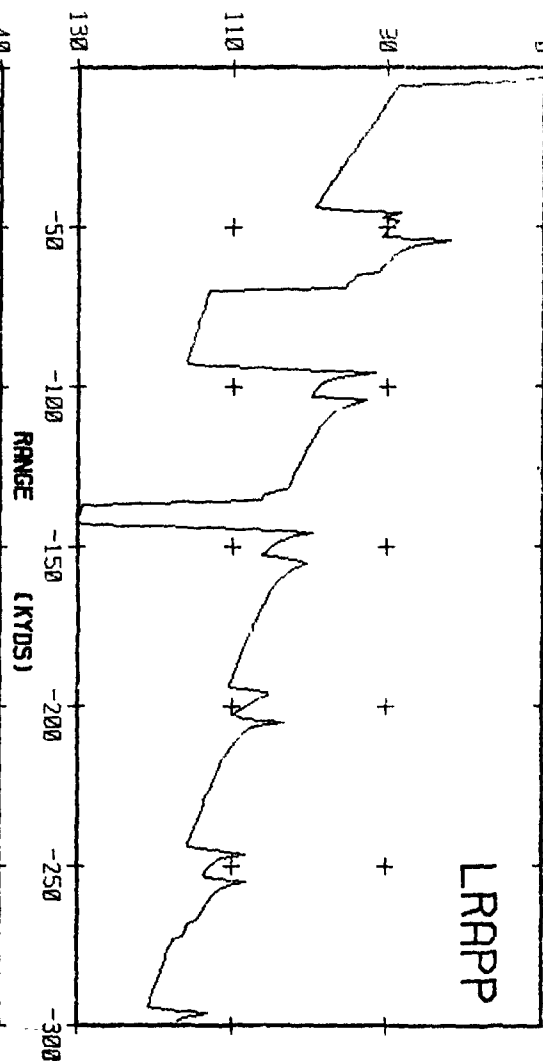


AREA 2 SUMMER

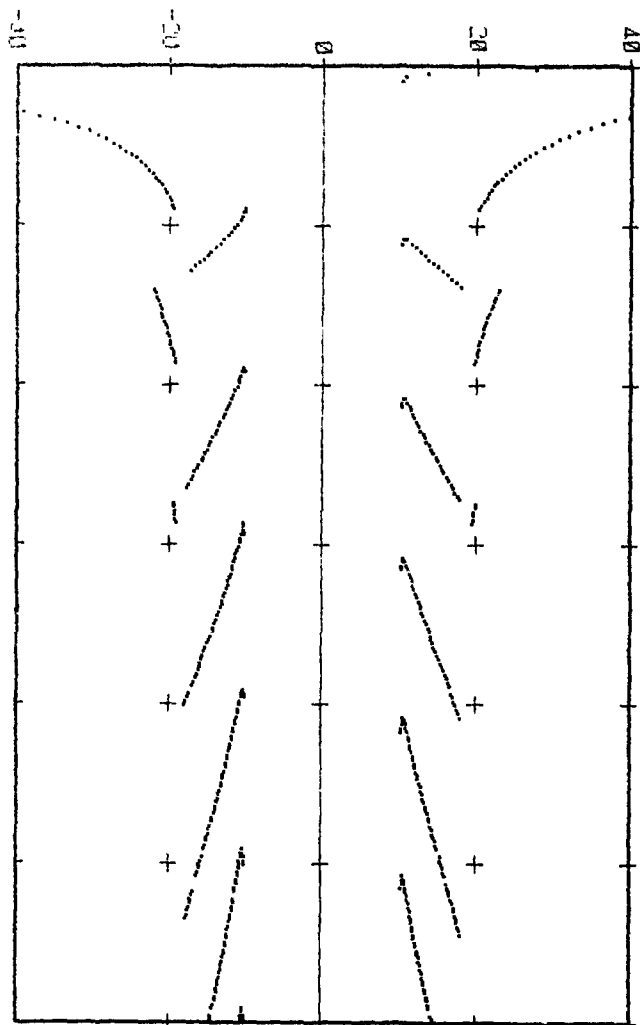
S 20 R 1968 F 1200

LRAPP

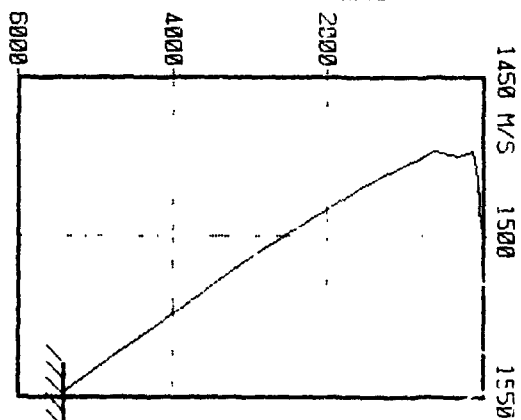
DB LOSS



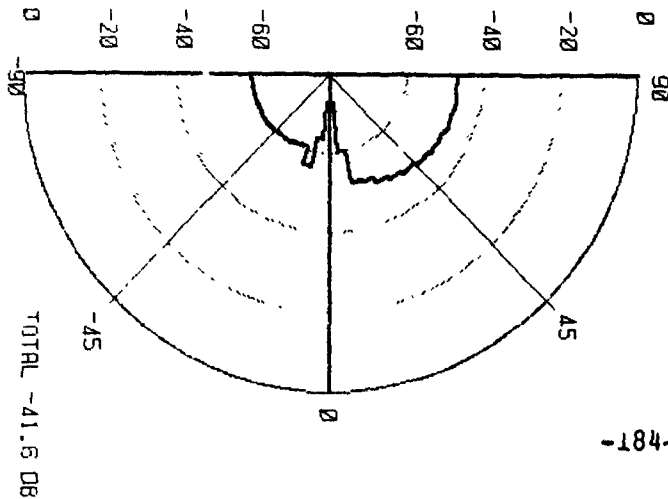
ARRIVAL ANGLE



DEPTH IN METERS



NOISE (DB)



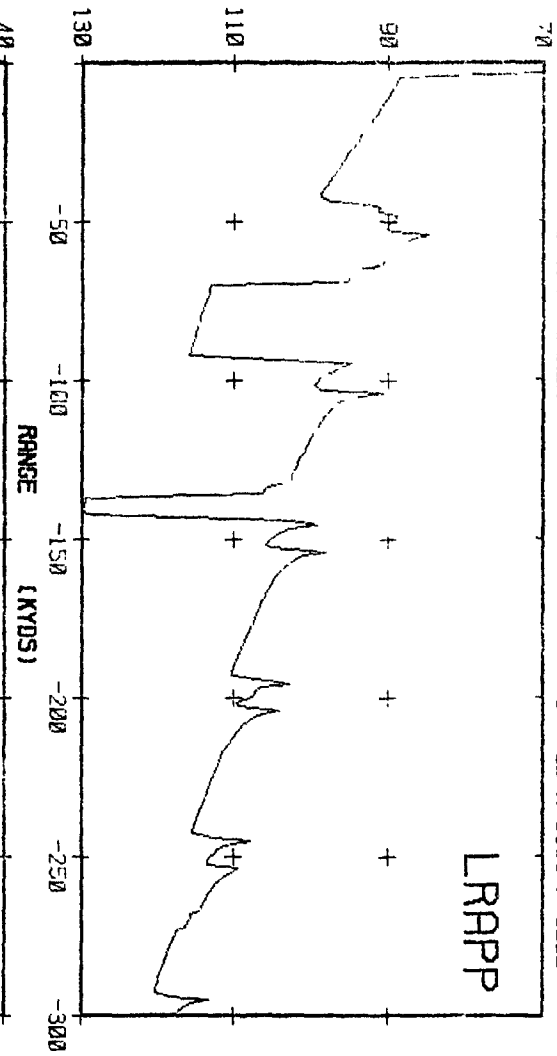
-184-

AREA 2 SUMMER

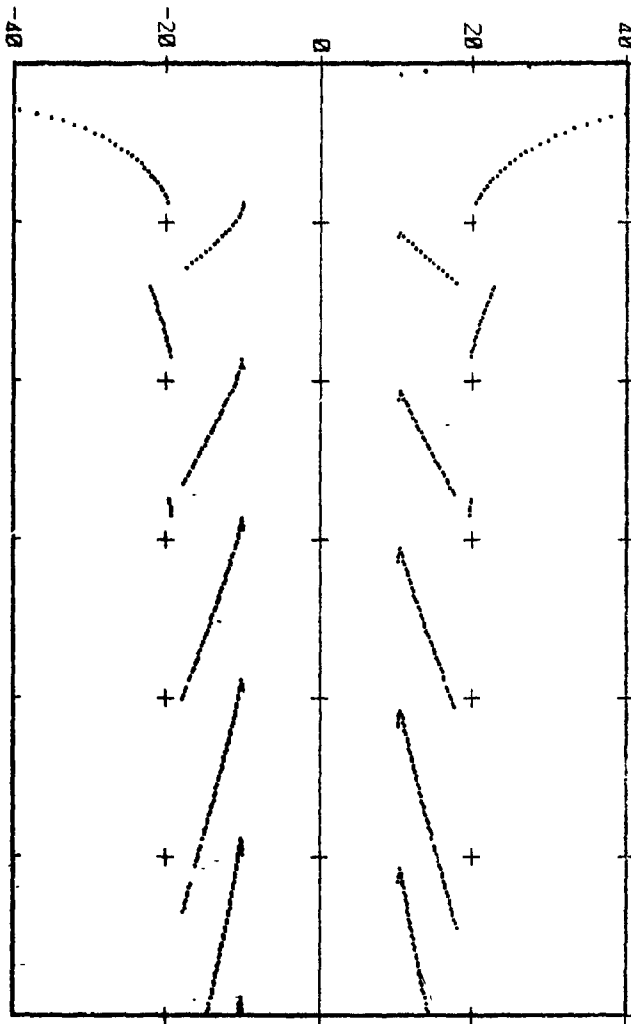
S 50 R 1968 F 1200

1450 M/S 1500 1550

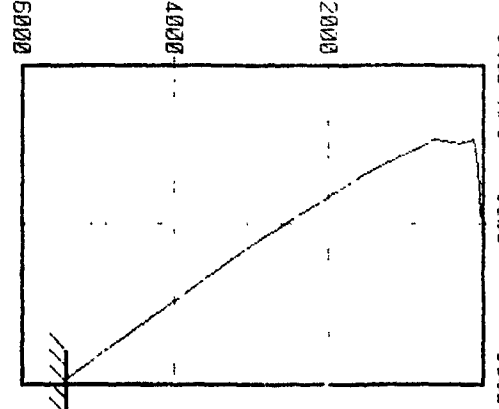
DB LOSS



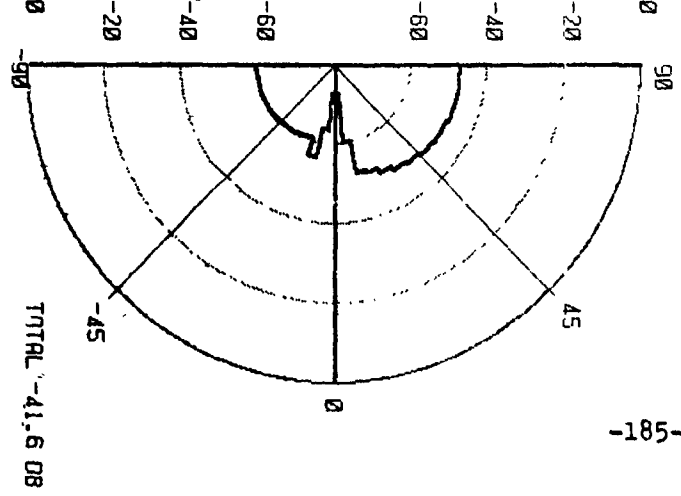
ARRIVAL ANGLE



DEPTH IN METERS



NOISE (DB)

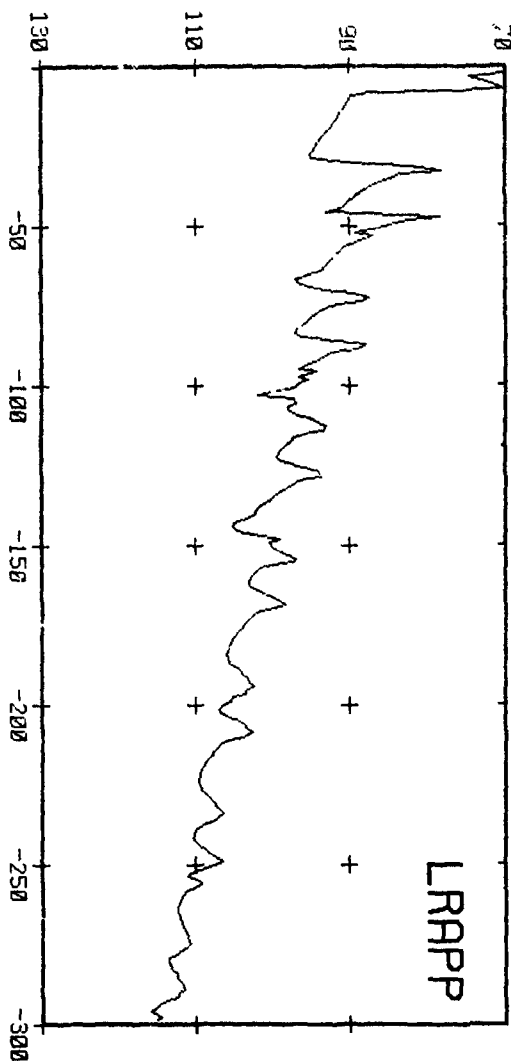


AREA 2 SUMMER

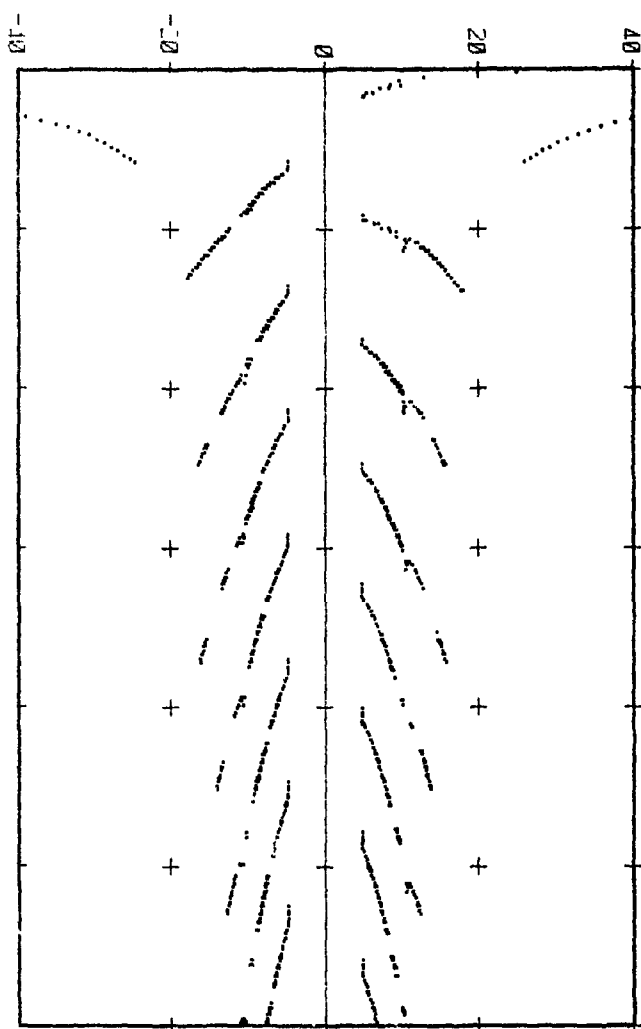
S 266 R 1968 F 1200

LRAPP

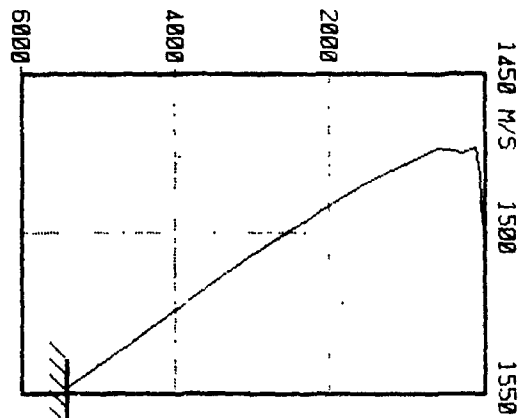
DB LOSS



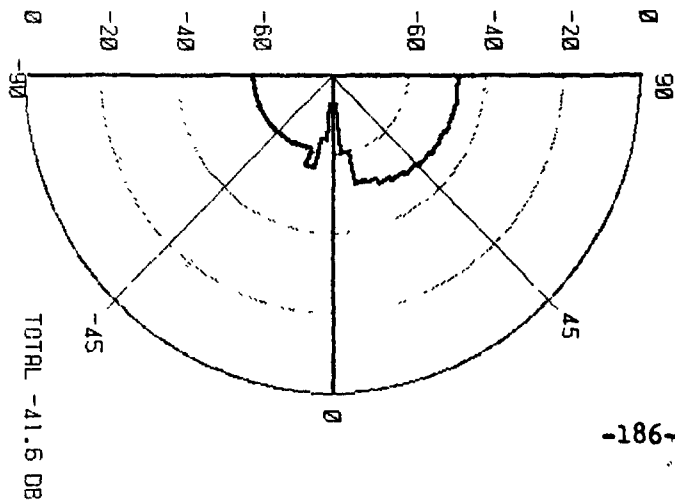
ARRIVAL ANGLE



DEPTH IN METERS



NOISE (DB)



-186-

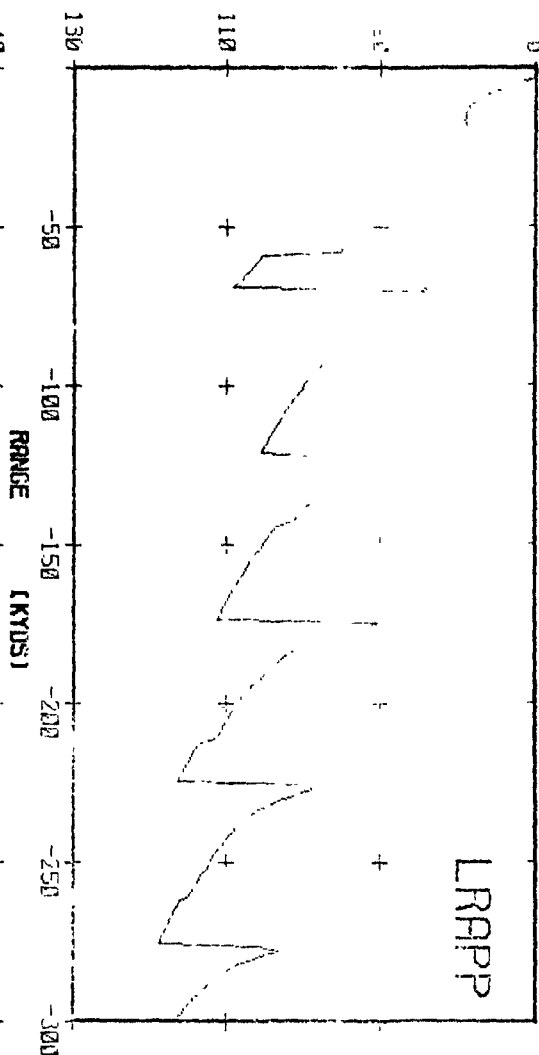
TOTAL -41.6 DB

RRR 2 SUMMER

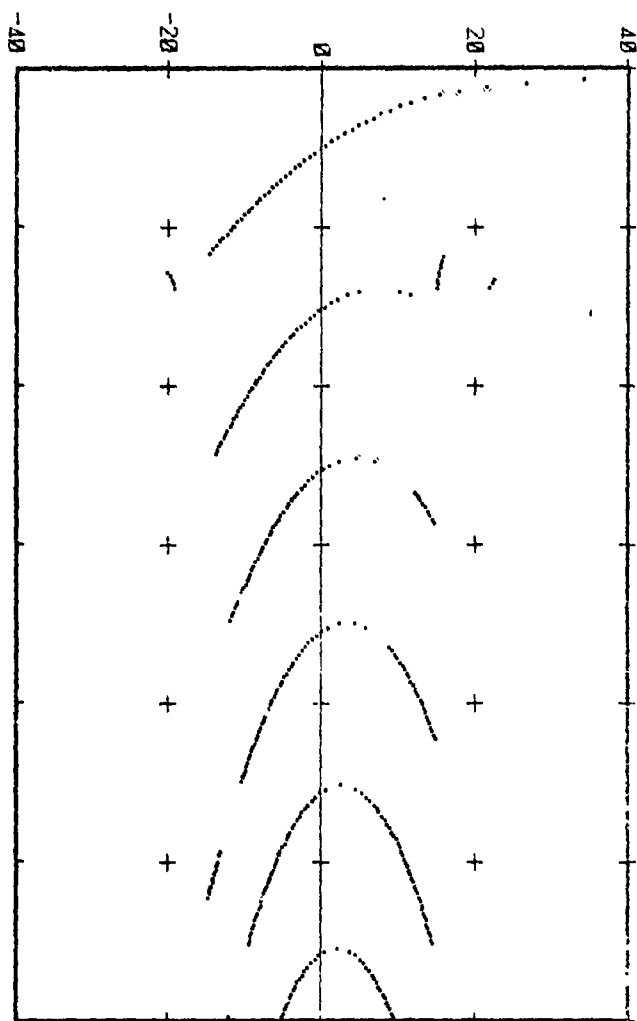
S 20 R 7874 F 1200

LRAPP

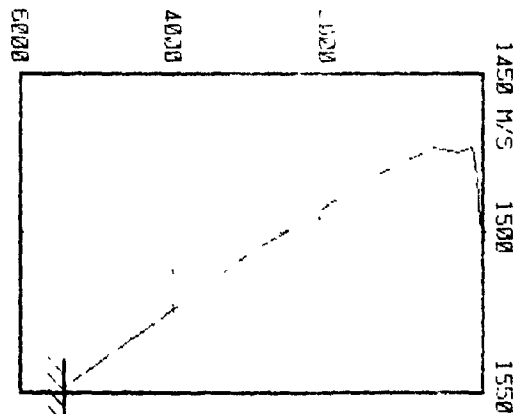
DB LOSS



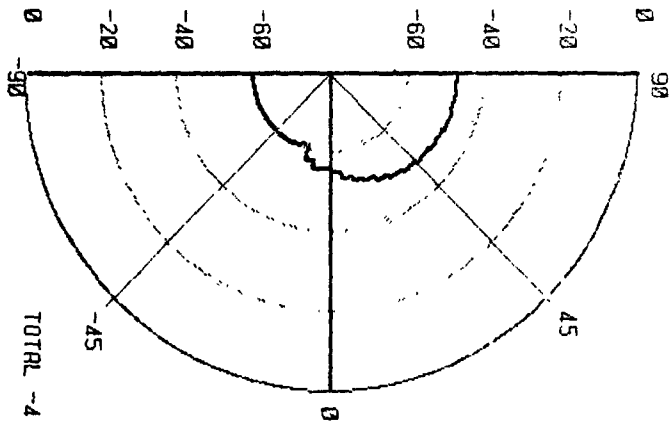
ARRIVAL ANGLE



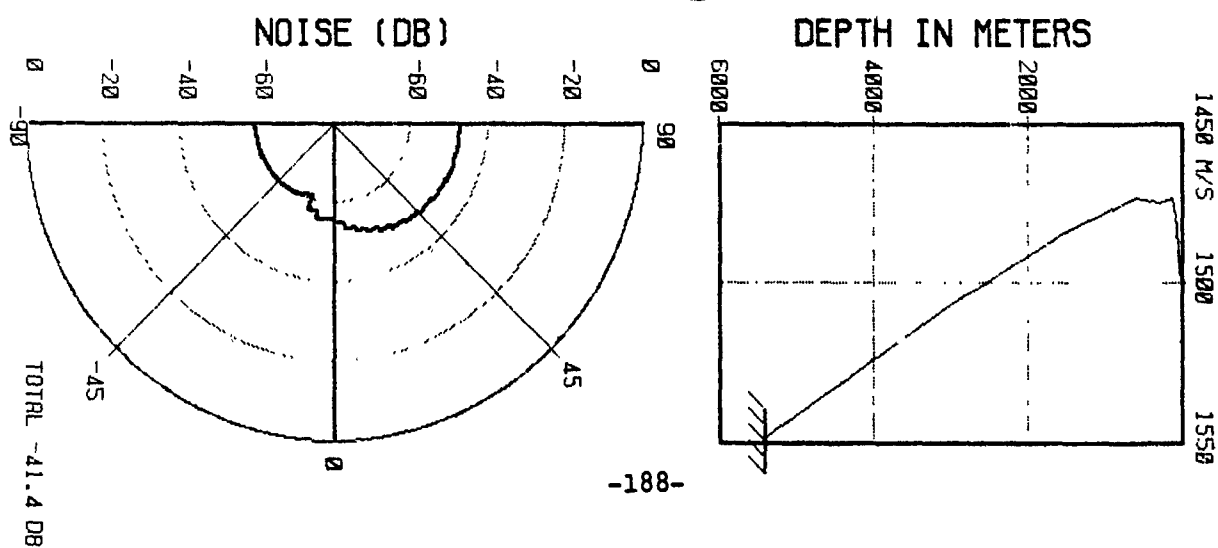
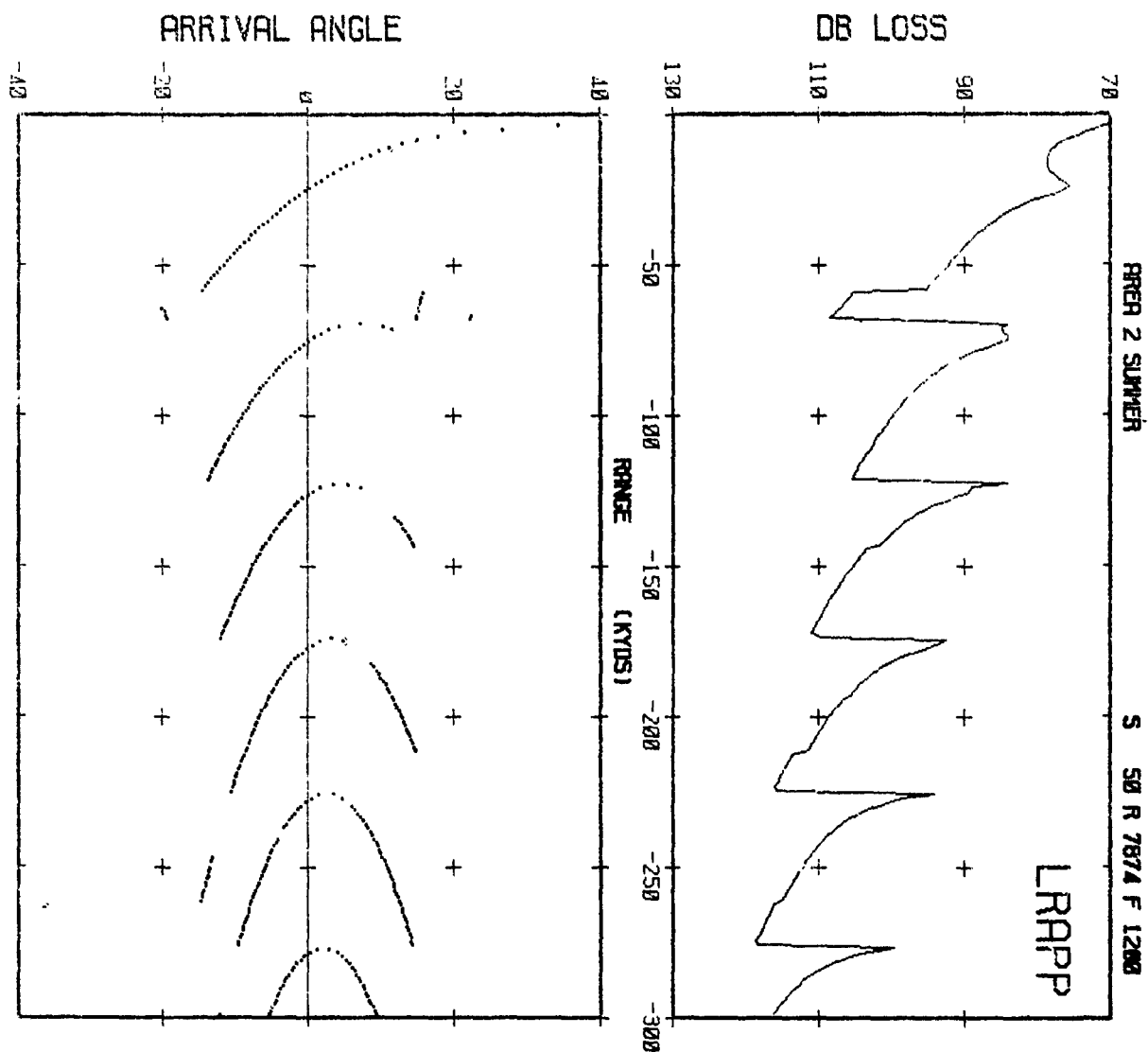
DEPTH IN METERS



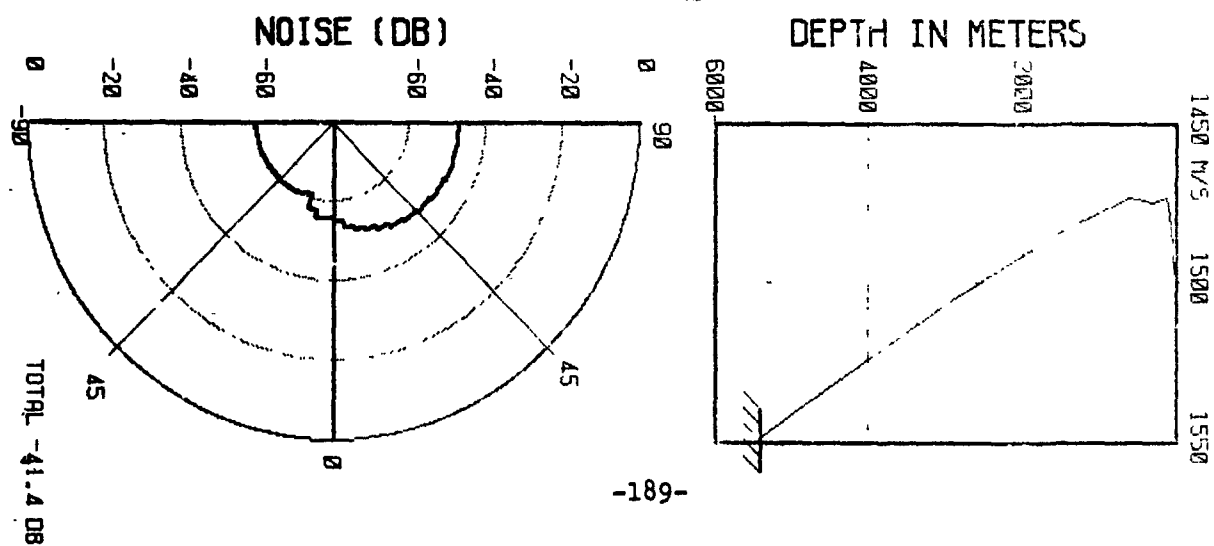
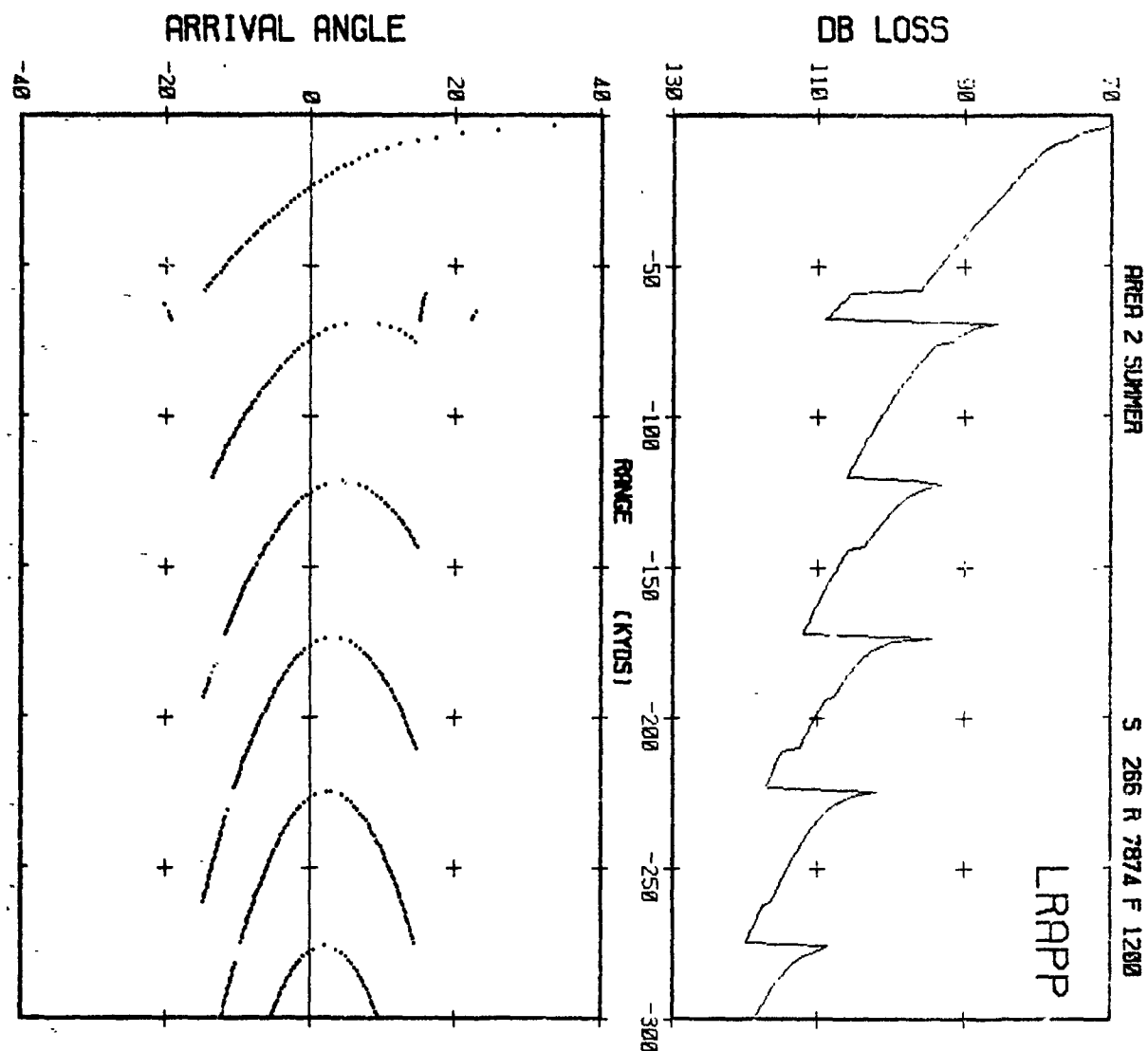
NOISE (DB)



TOTAL -41.4 DB



TOTAL -41.4 DB



-189-

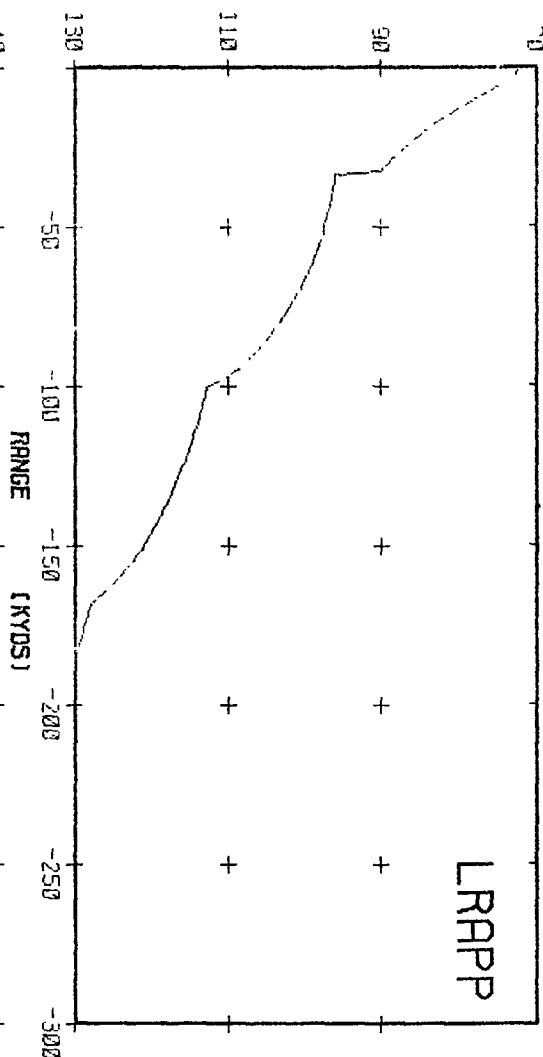
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PRER 2 SUMMER

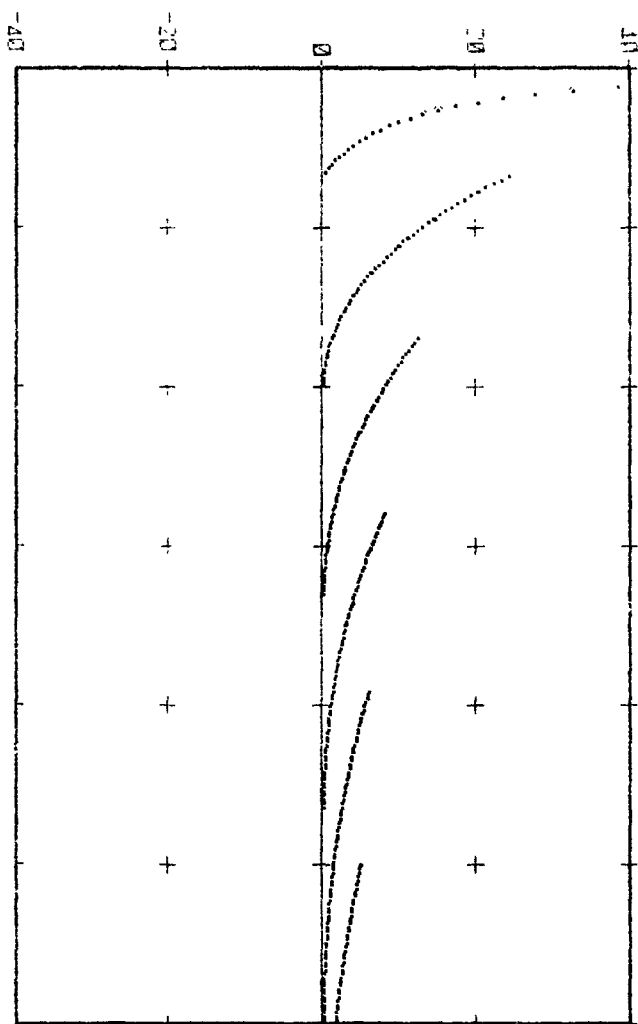
S 20 R17759 F 1200

LRAPP

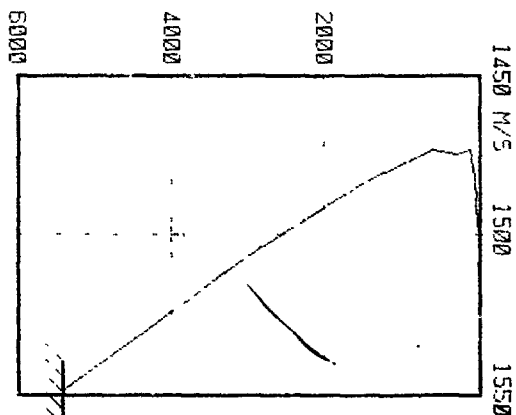
DB LOSS



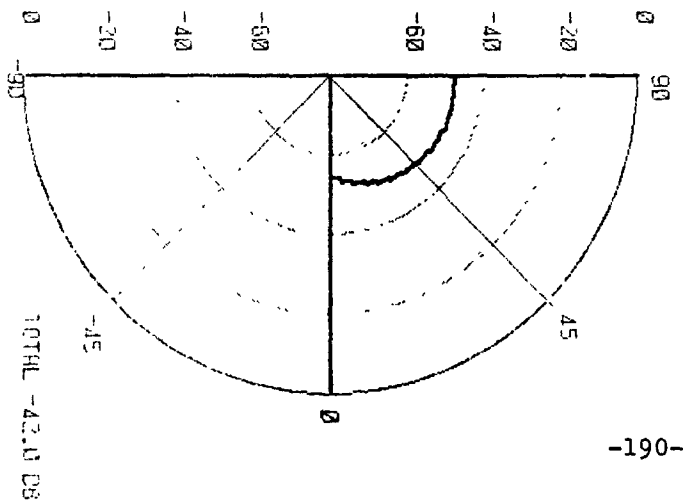
ARRIVAL ANGLE



DEPTH IN METERS



NOISE (DB)

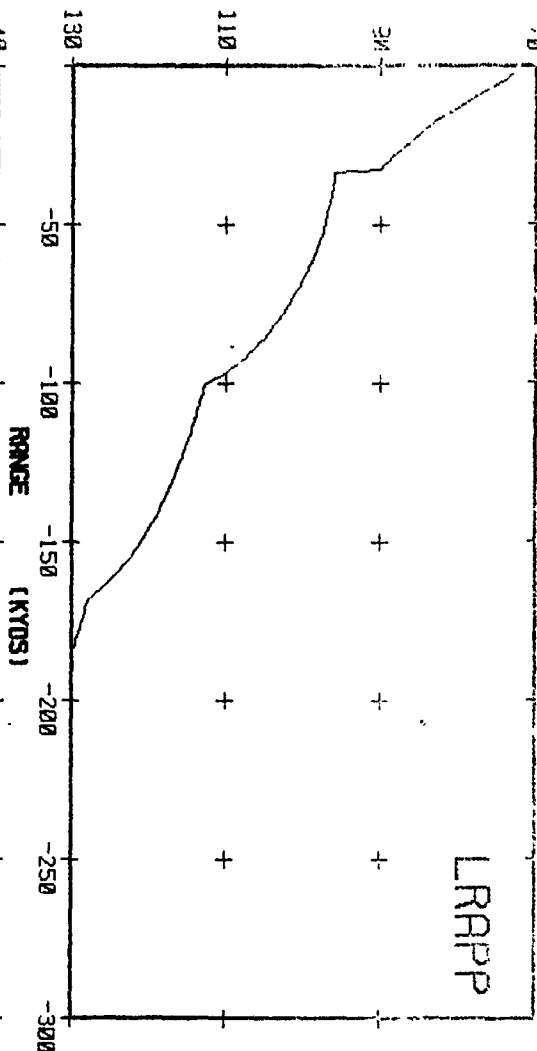


PRER 2 SUMMER

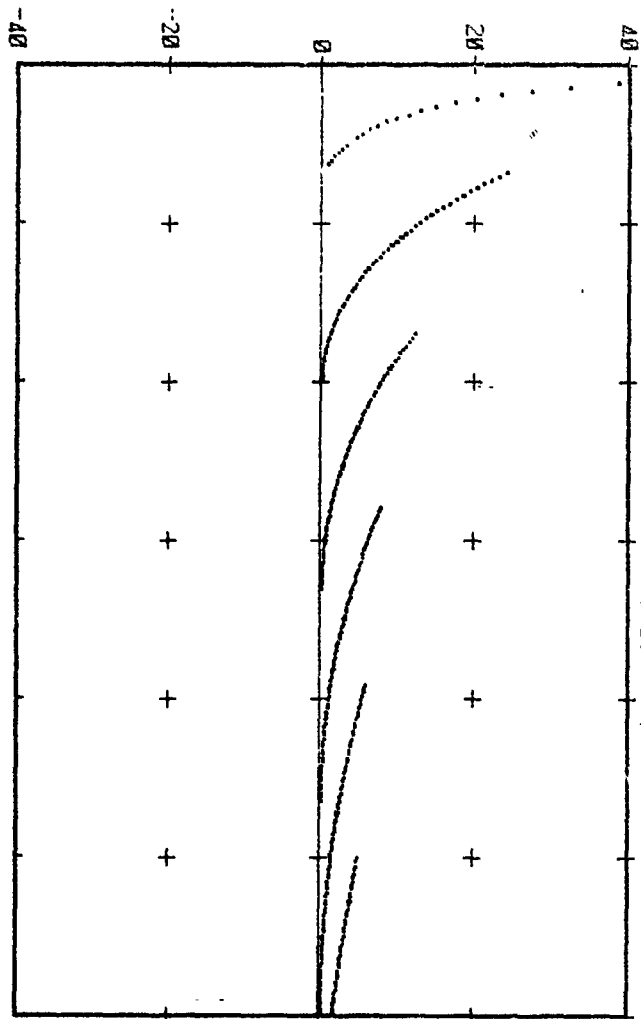
S 50 R17759 F 1250

1450 M/S 1500 1550

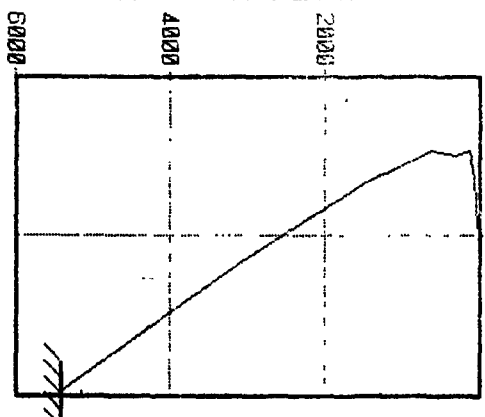
DB LOSS



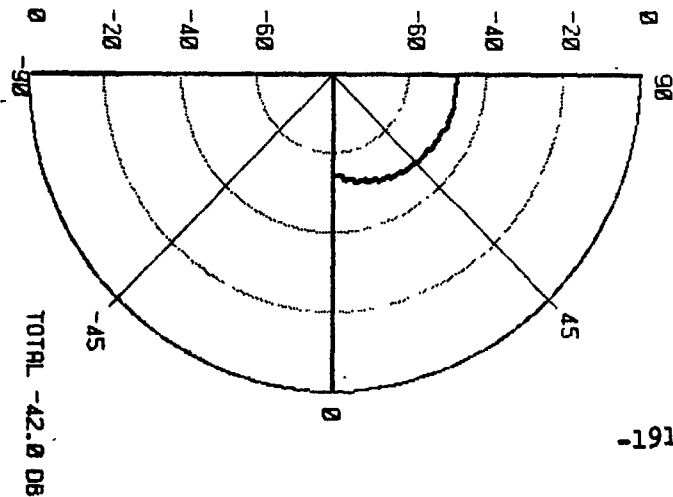
ARRIVAL ANGLE



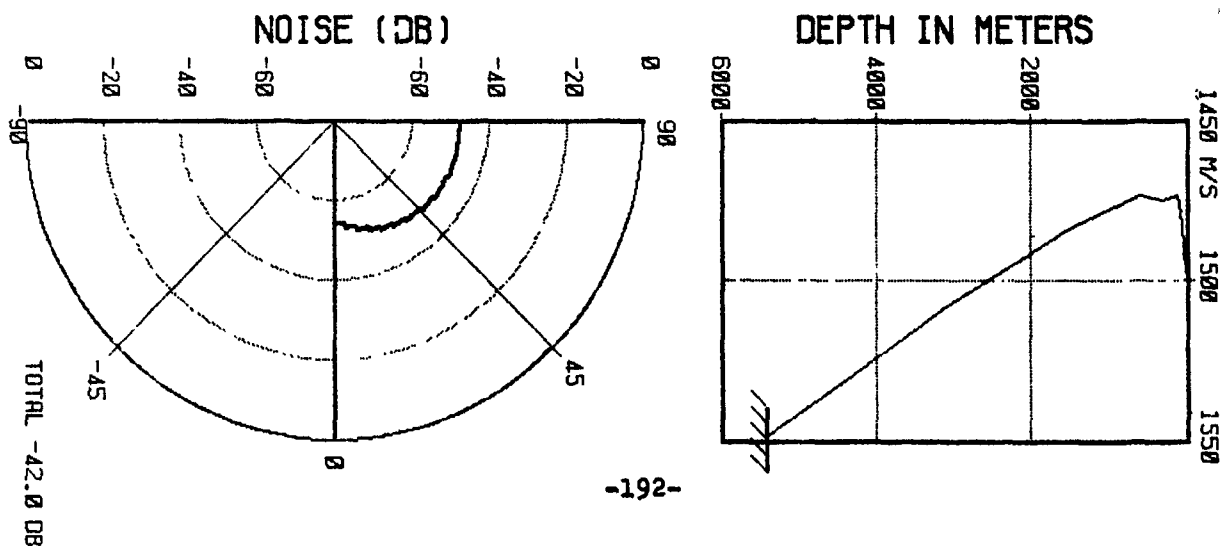
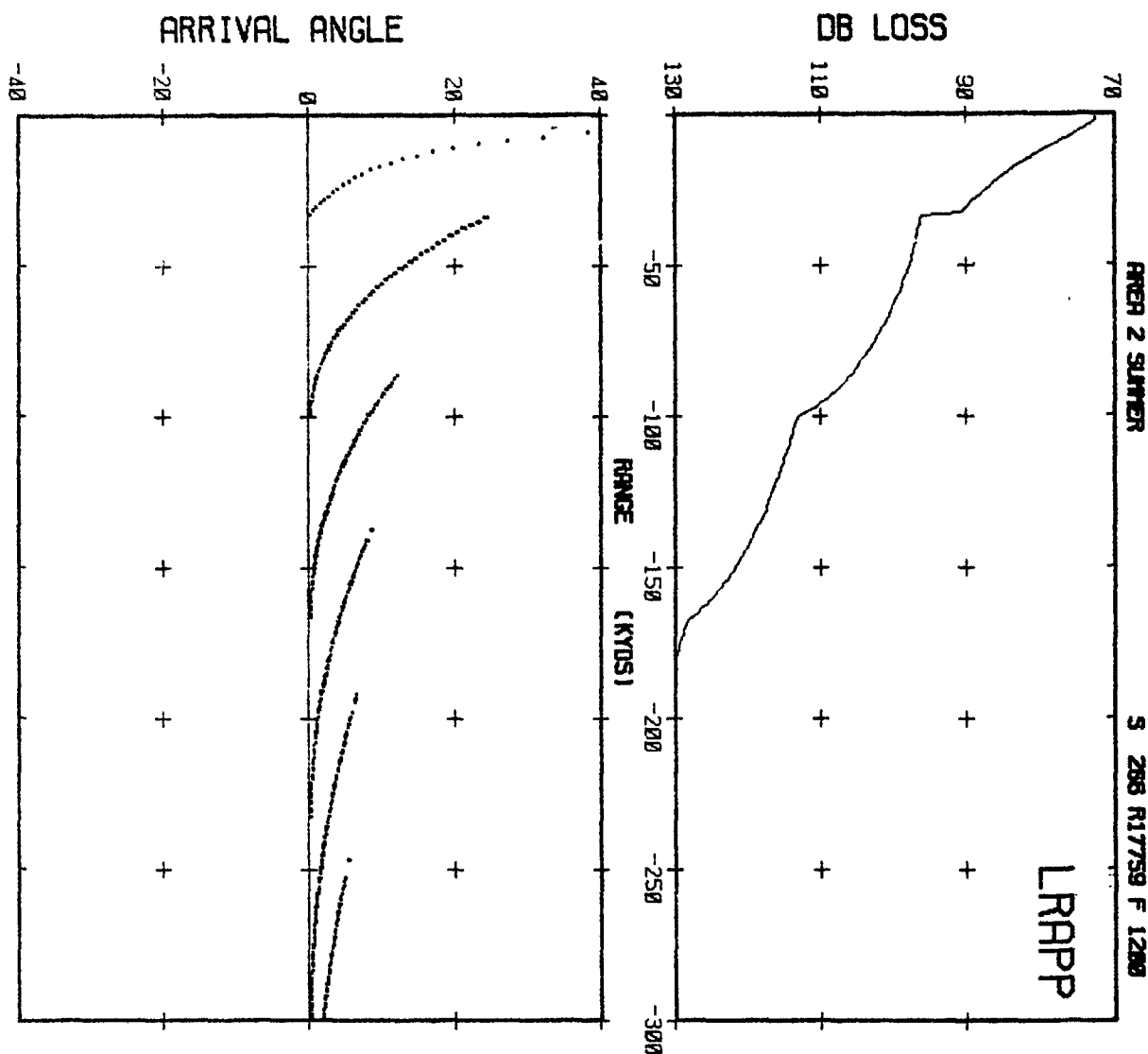
DEPTH IN METERS



NOISE (DB)





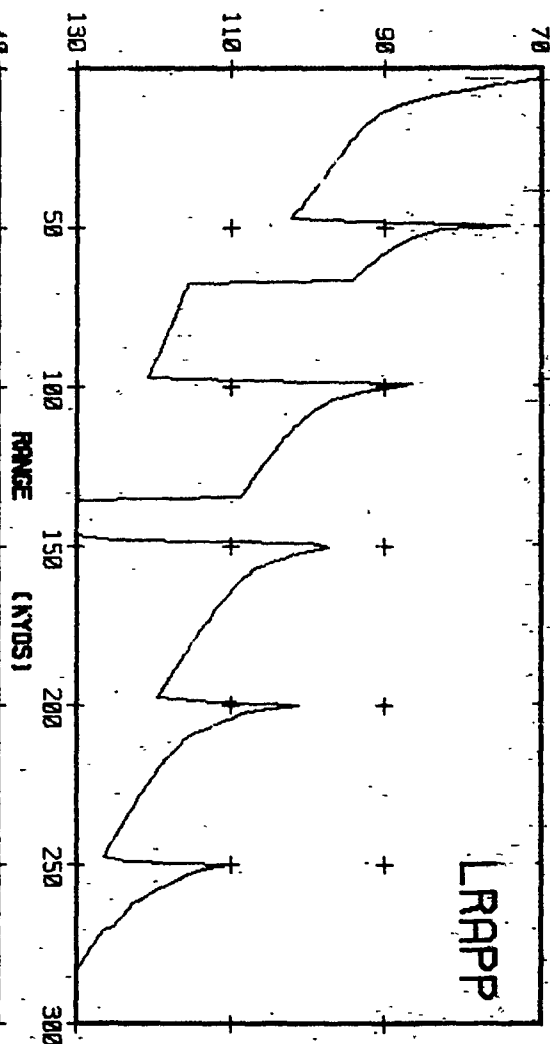


PRER 2 SUMMER

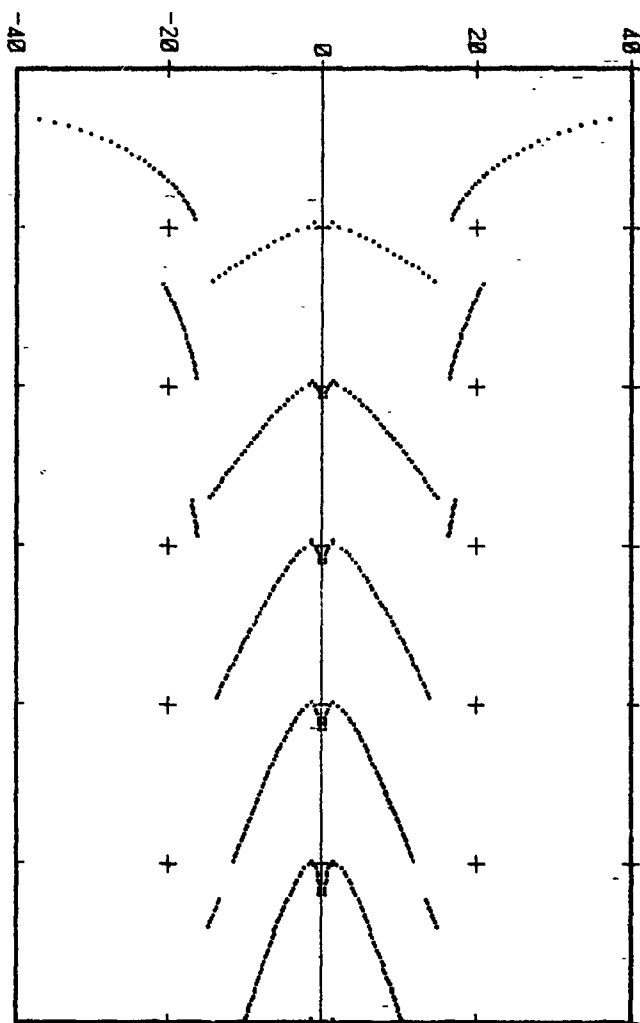
S 28 N 60 F 2000

LRAPP

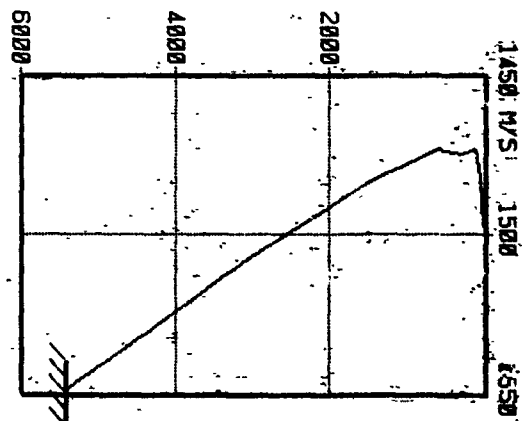
DB LOSS



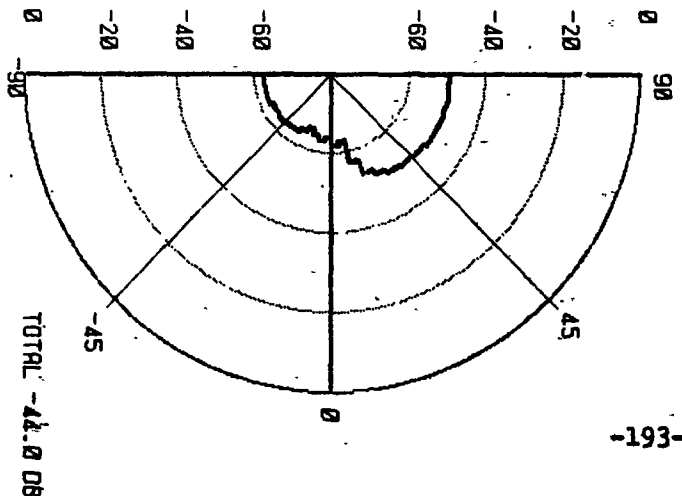
ARRIVAL ANGLE

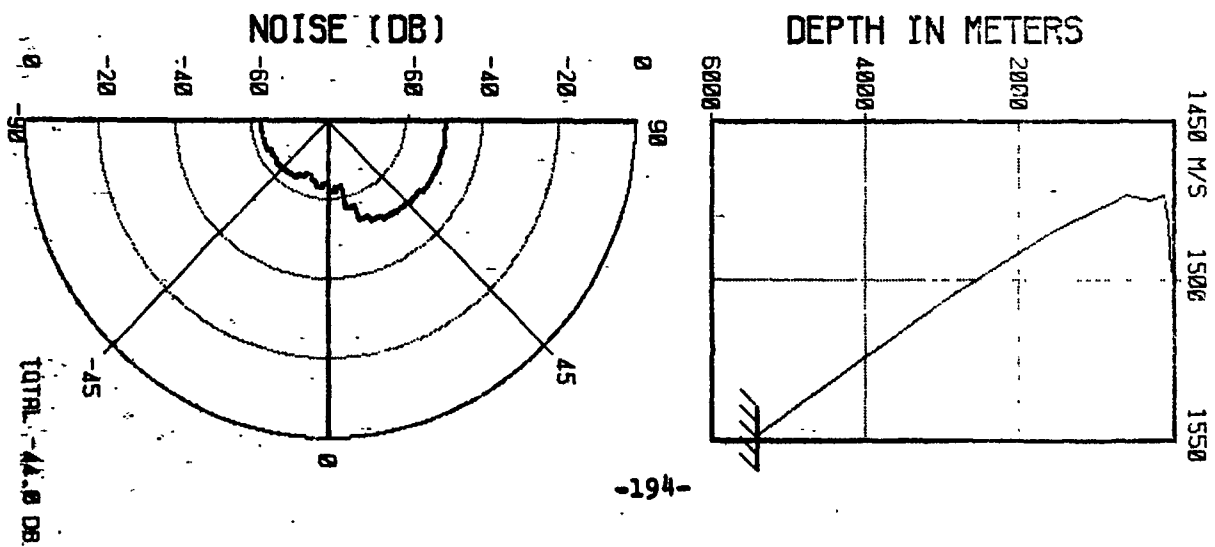
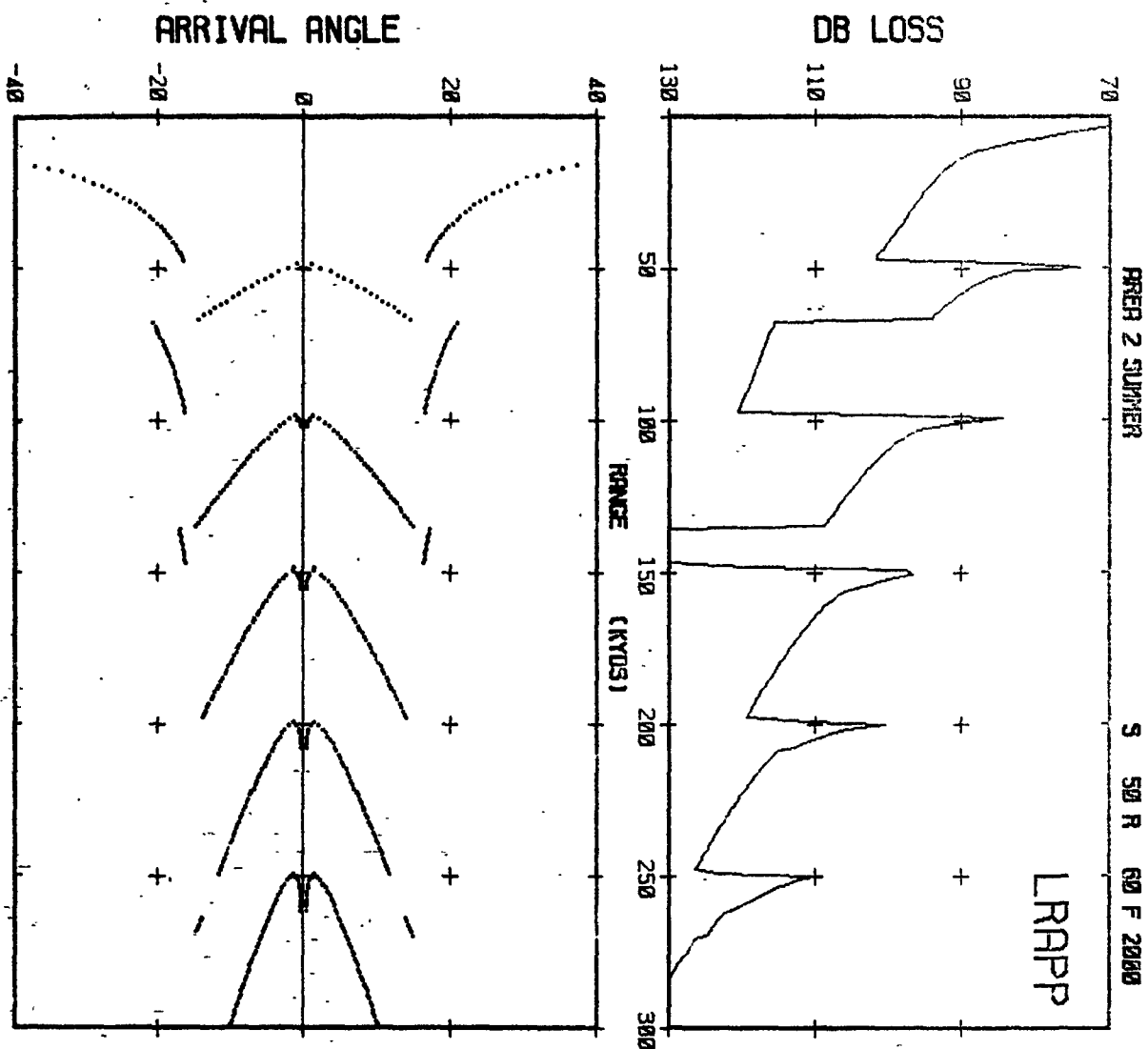


DEPTH IN METERS



NOISE (DB)



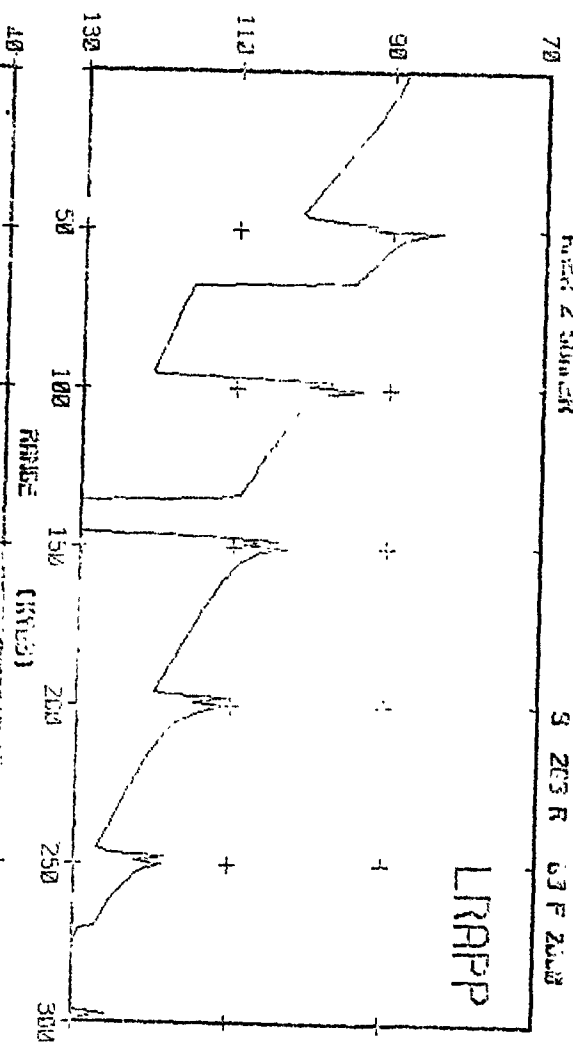


FORM 2 SINGER

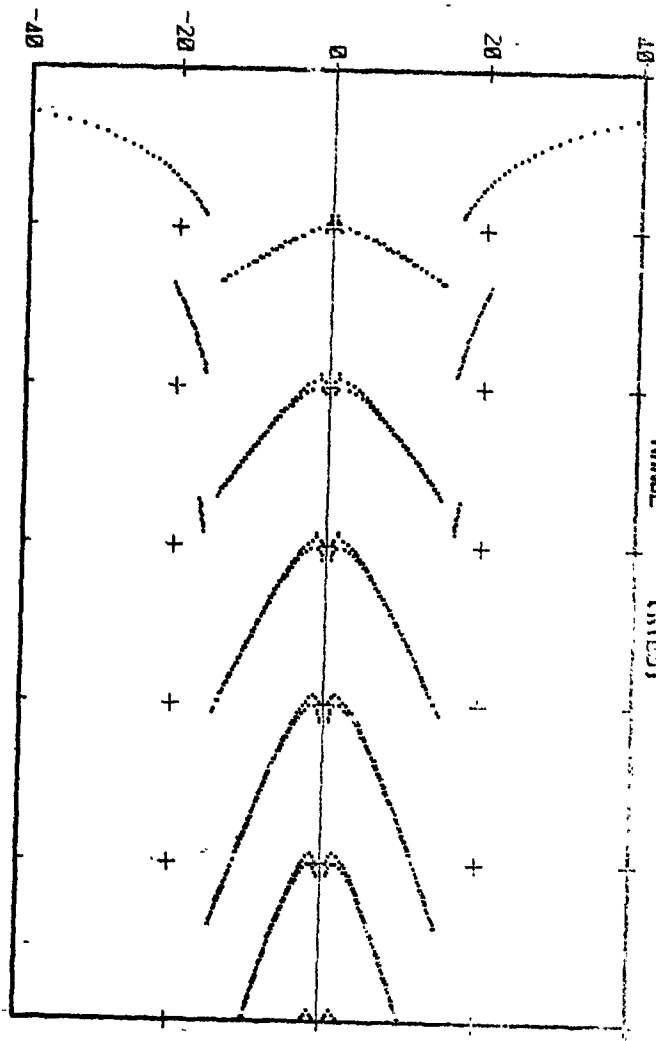
9 203 R 63 F 20.0

LRAPP

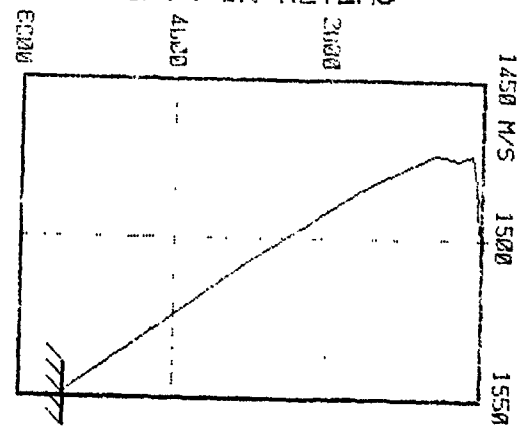
DB LOSS



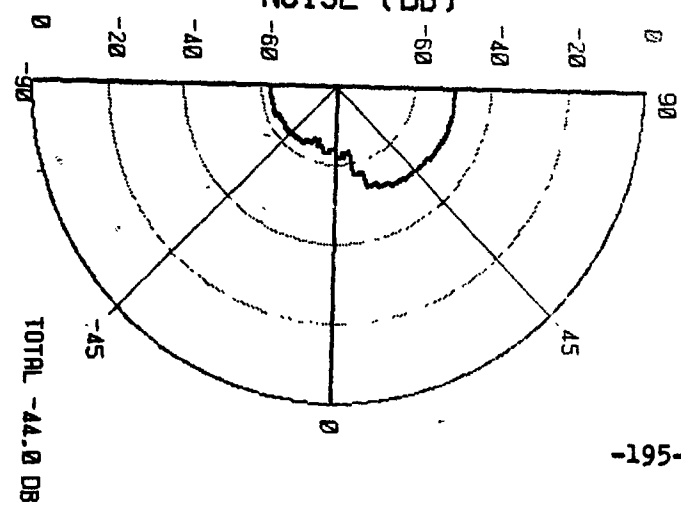
ARRIVAL ANGLE

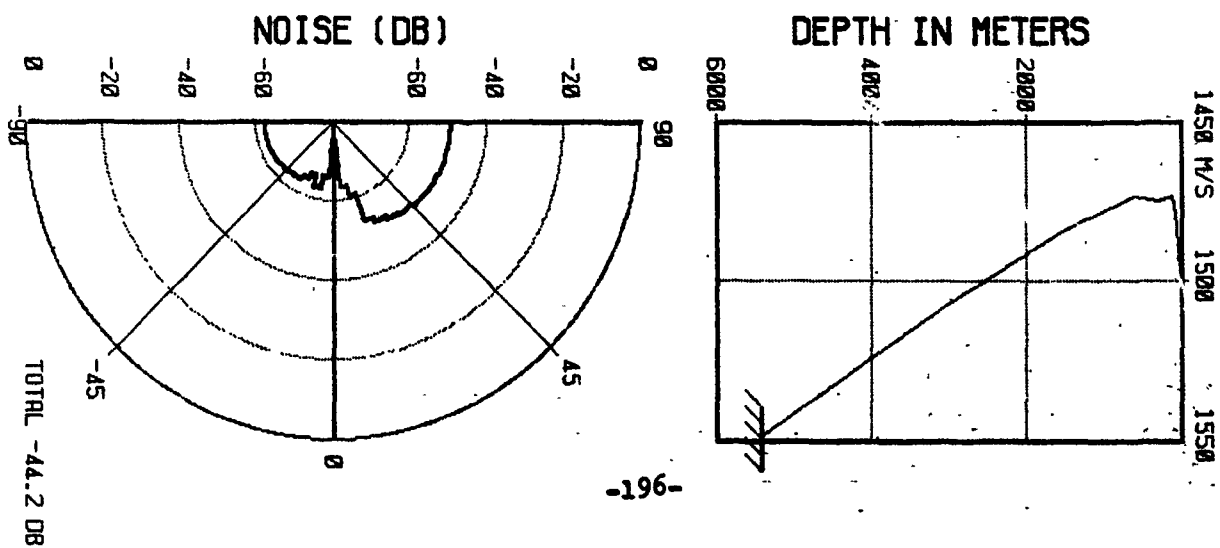
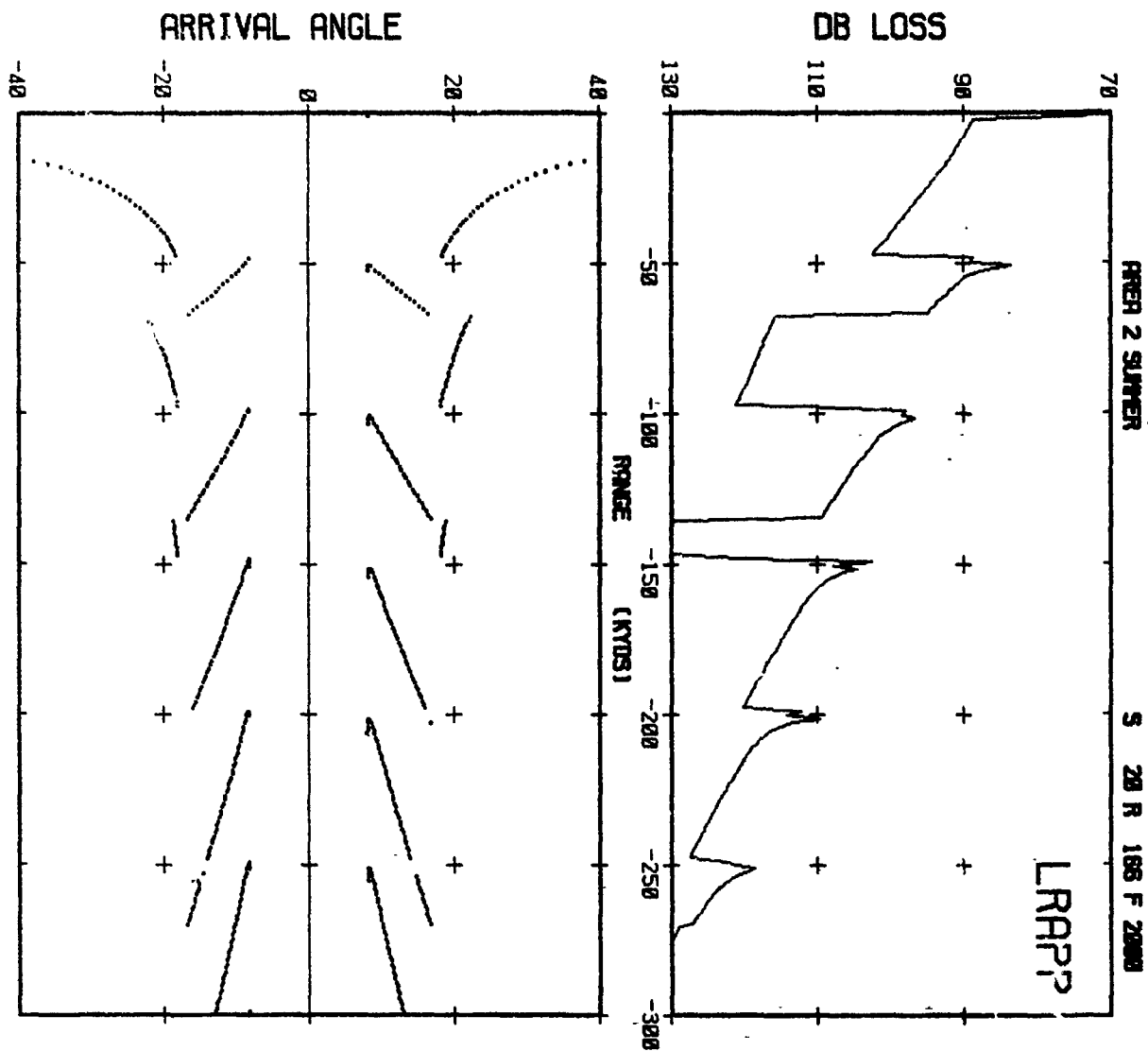


DEPTH IN METERS



NOISE (DB)



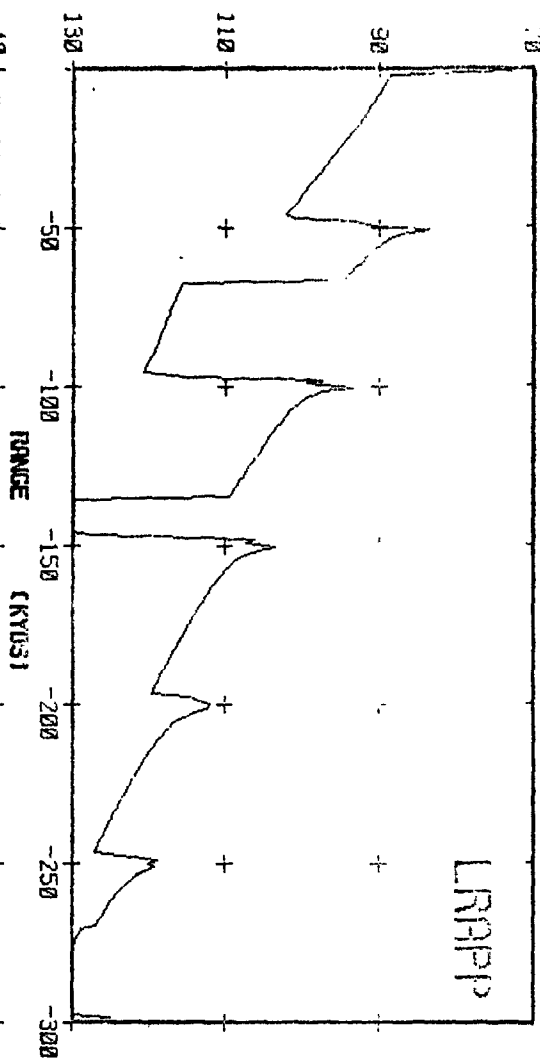


AREA 2 SUMMER

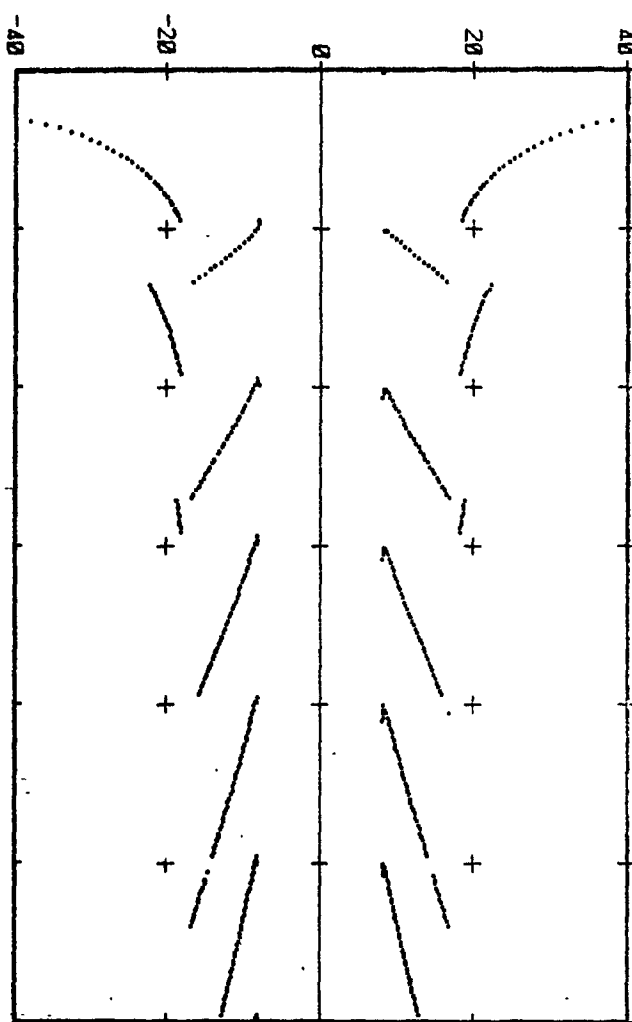
S 53 R 168 F 2020

1450 M/S 1500 1550

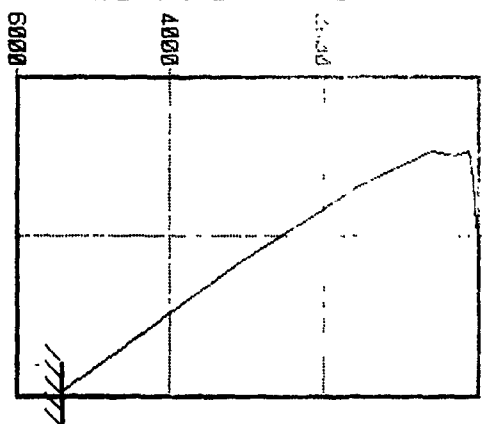
DB LOSS



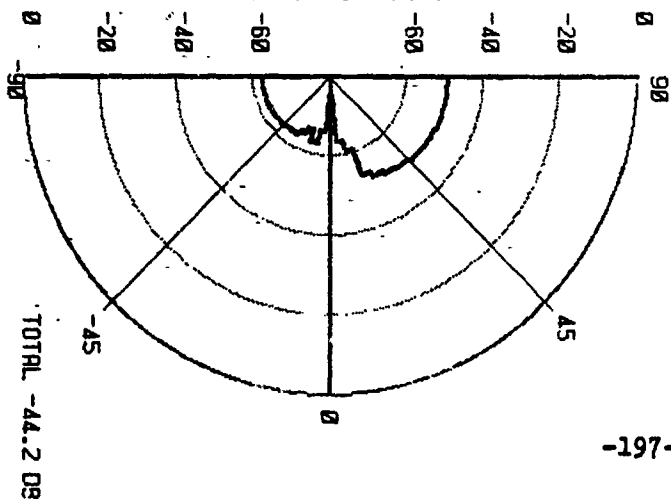
ARRIVAL ANGLE

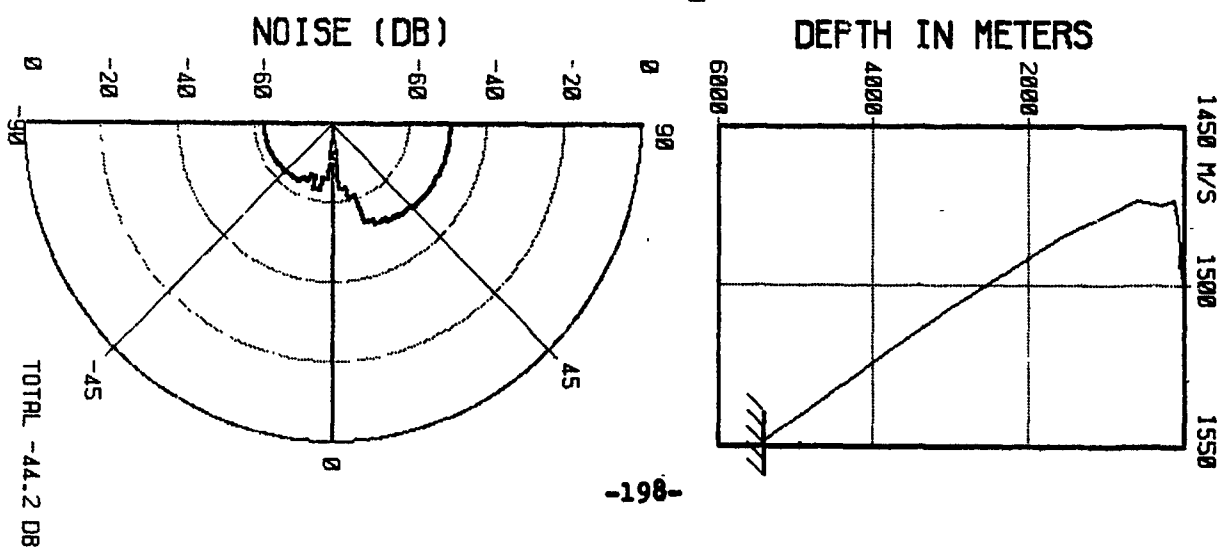
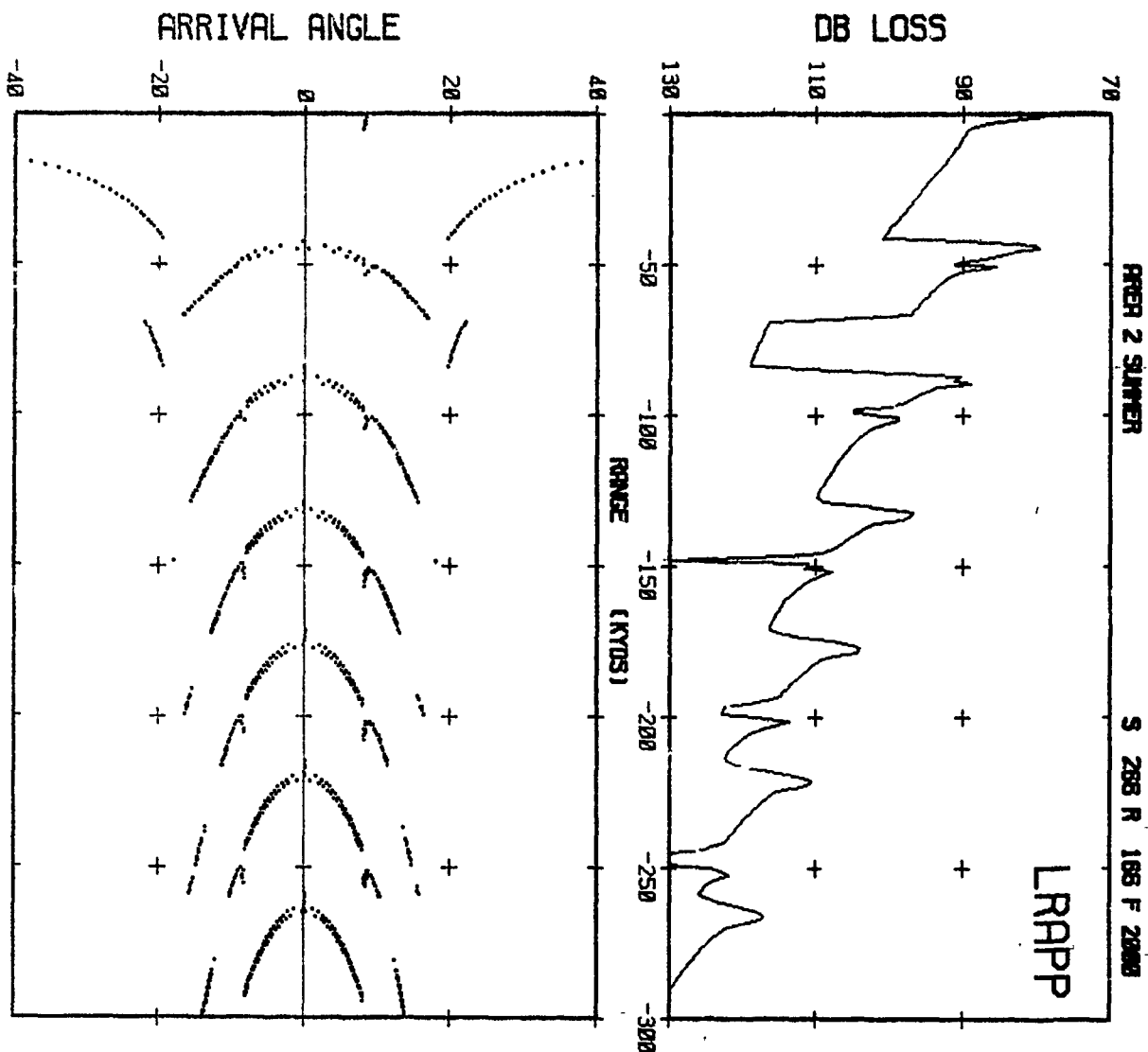


DEPTH IN METERS



NOISE (DB)

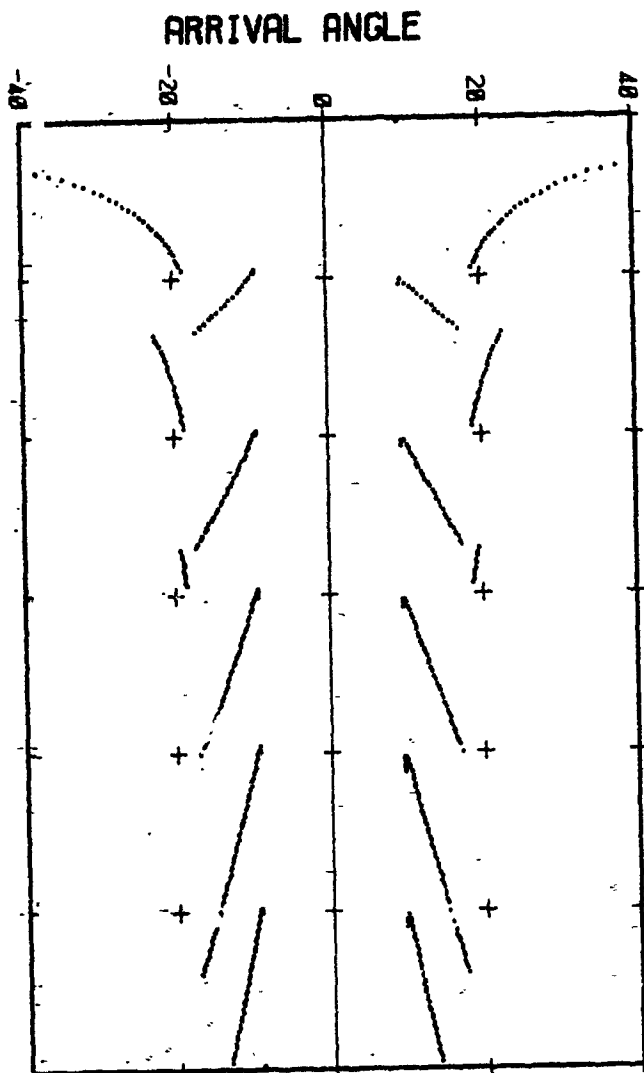
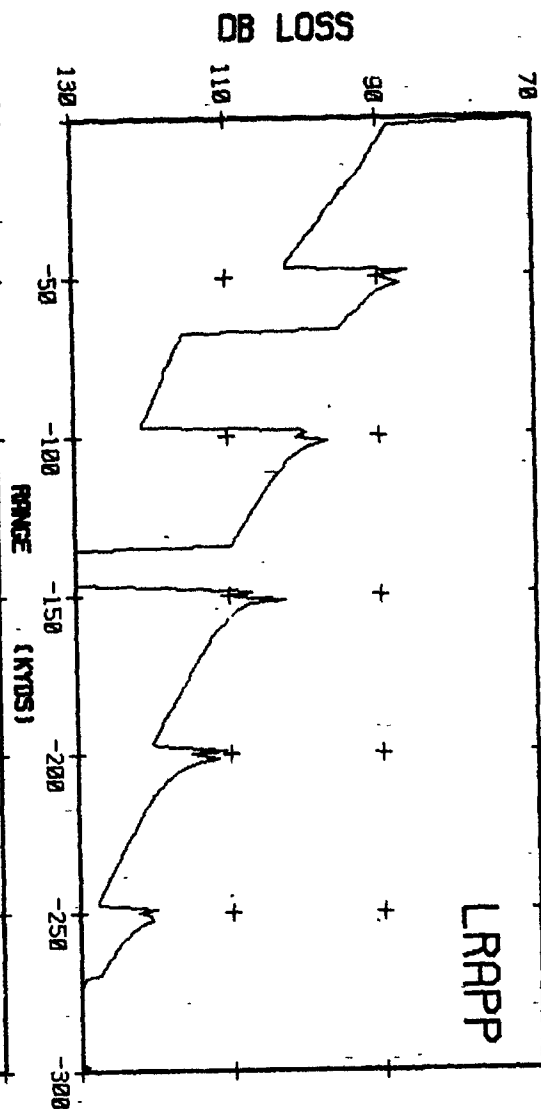




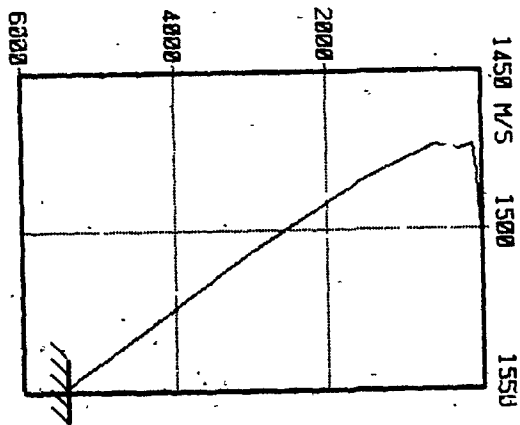
RRR 2 SUMMER

S 20 R 300 F 2000

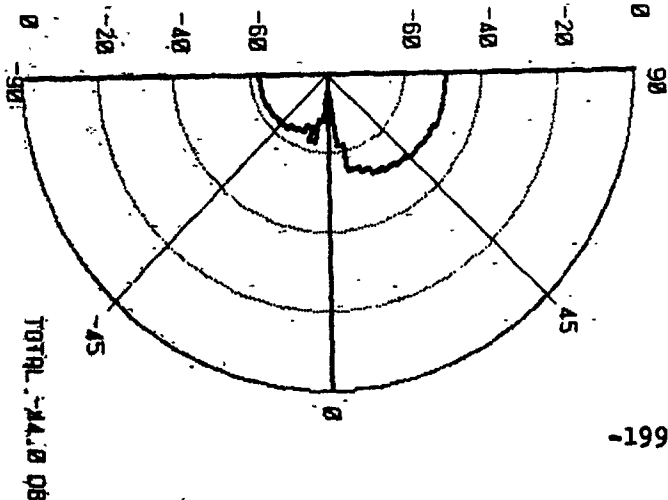
LRAPP



DEPTH IN METERS



NOISE (DB)



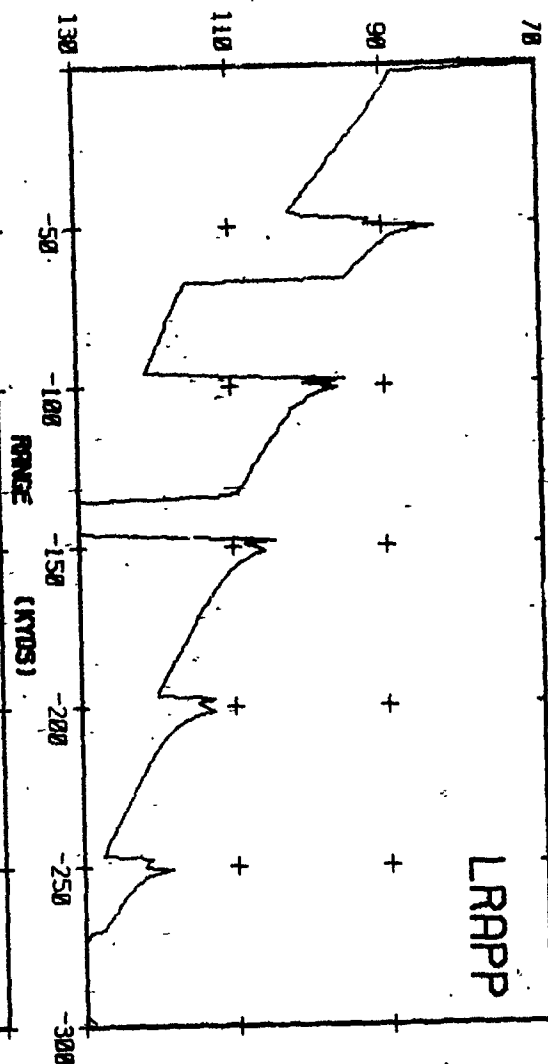


AREA 2 SURVER

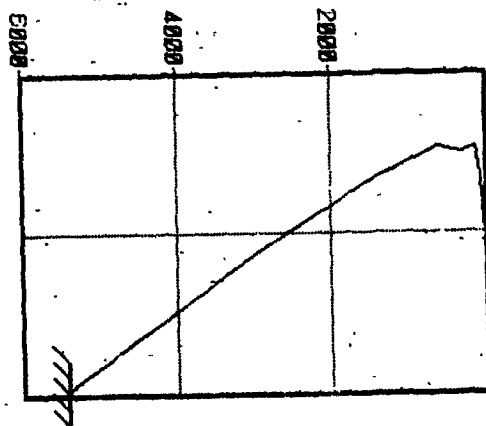
S 50 R 300 F 2000

1450 H/S 1500 1550

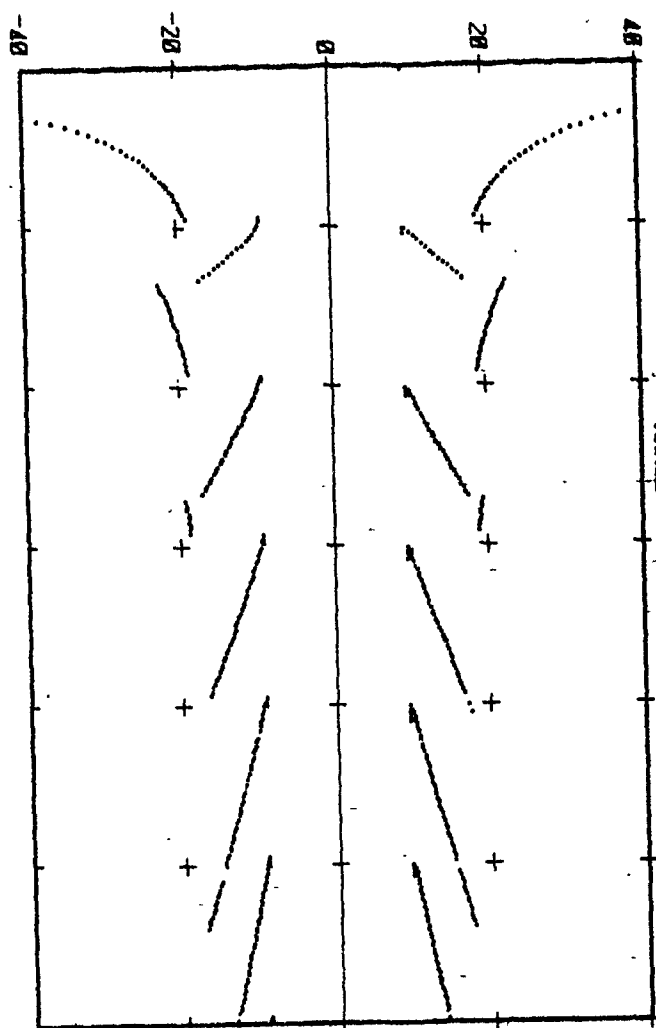
DB LOSS



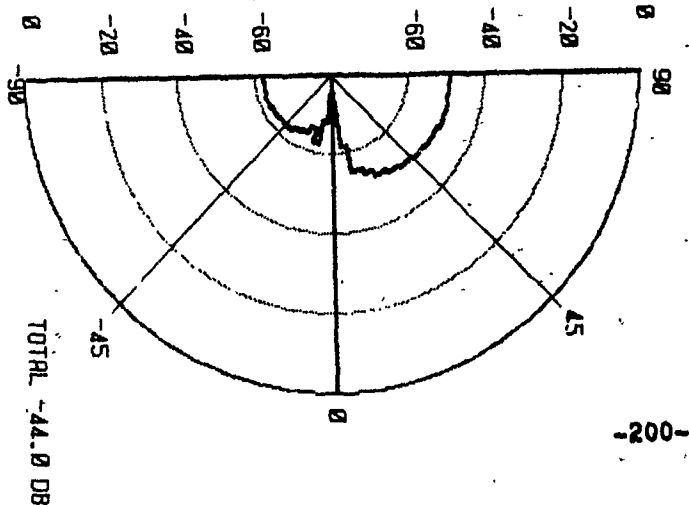
DEPTH IN METERS



ARRIVAL ANGLE



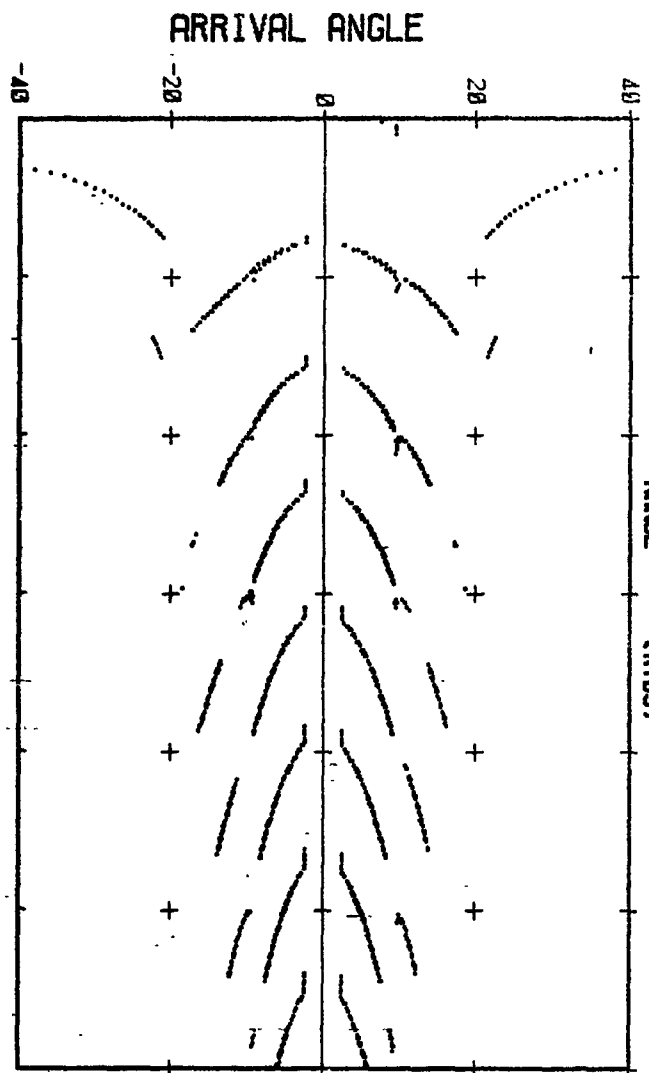
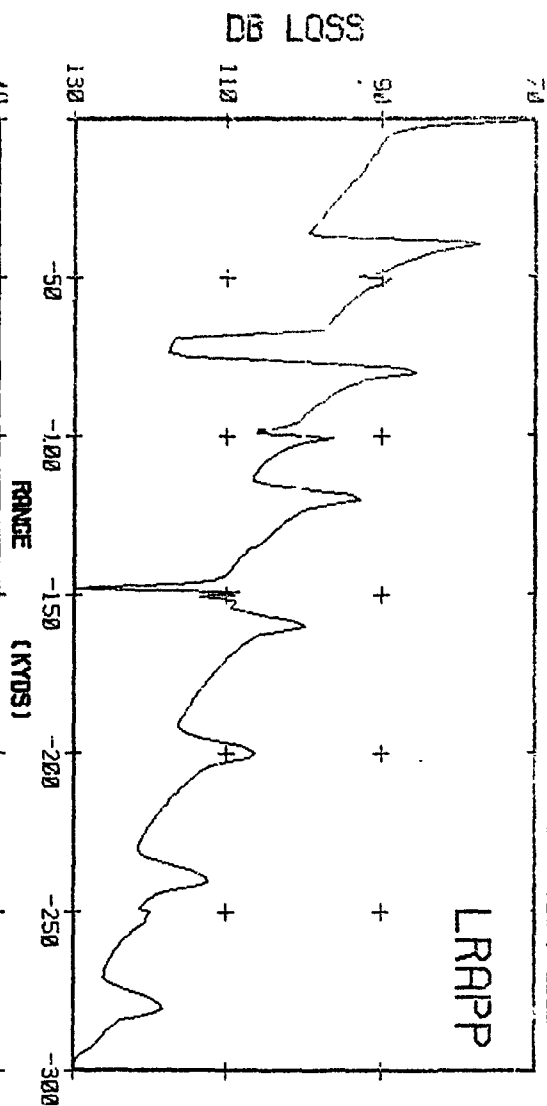
NOISE (DB)



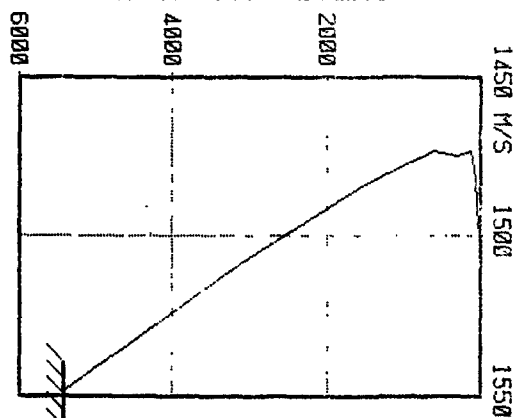
FINER 2 SUMMER

S 205 R 300 F 20.00

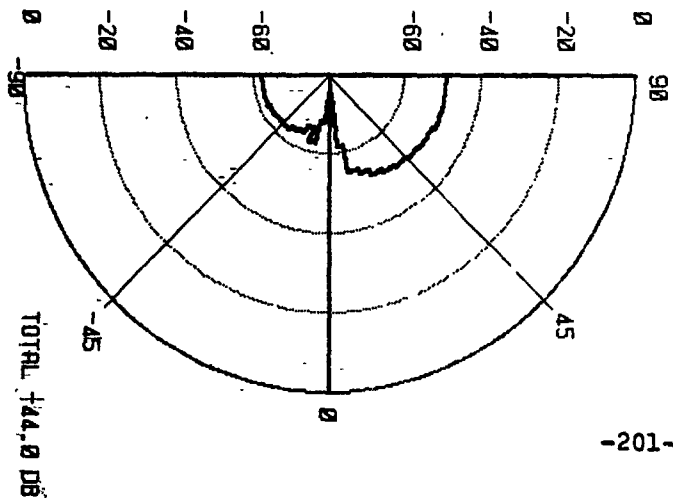
LRAPP



DEPTH IN METERS



NOISE (DB)

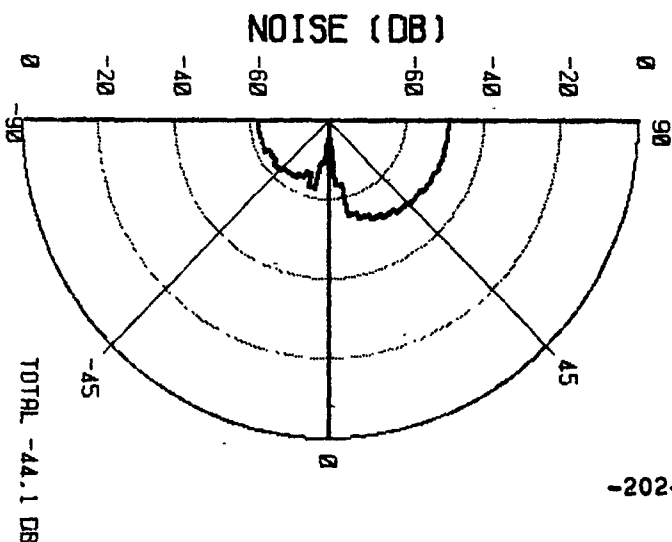
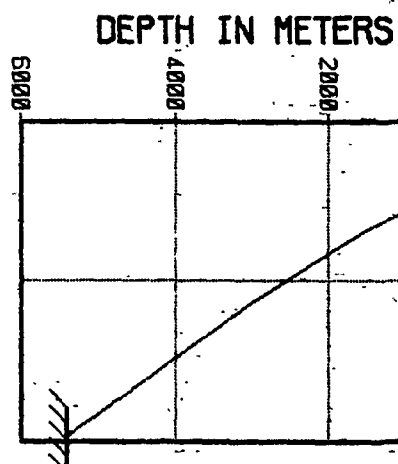
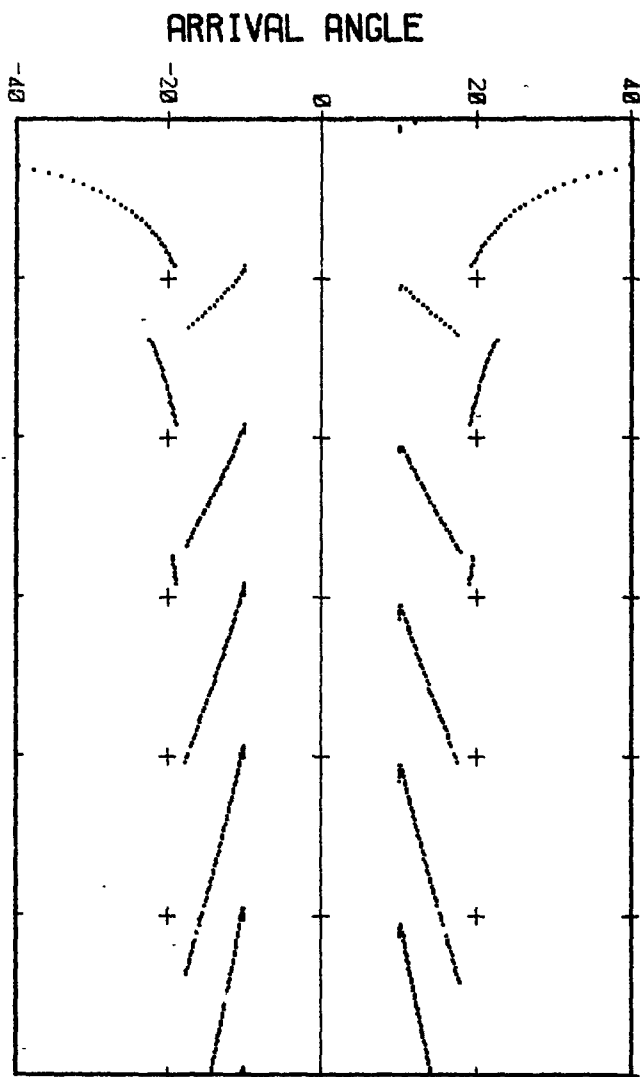
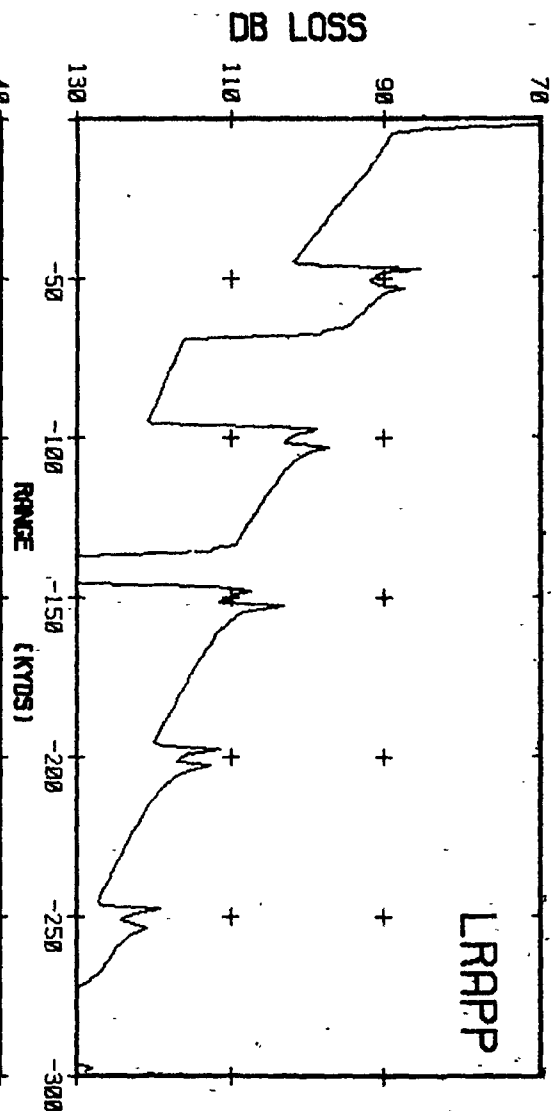


-201-

ARR 2 SUMMER

S 20 R 1000 F 2000

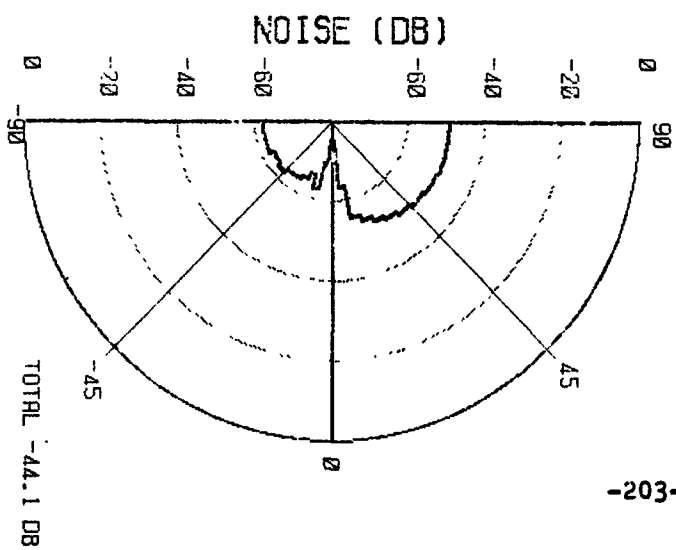
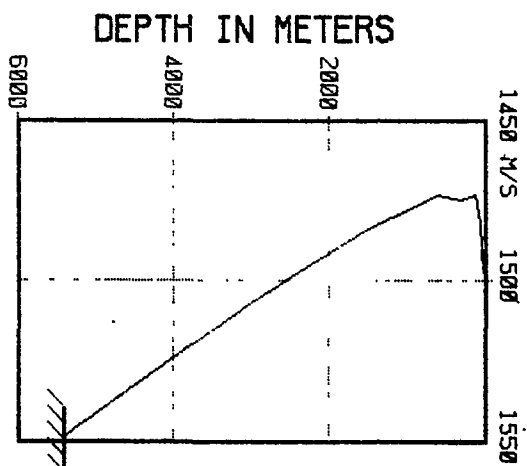
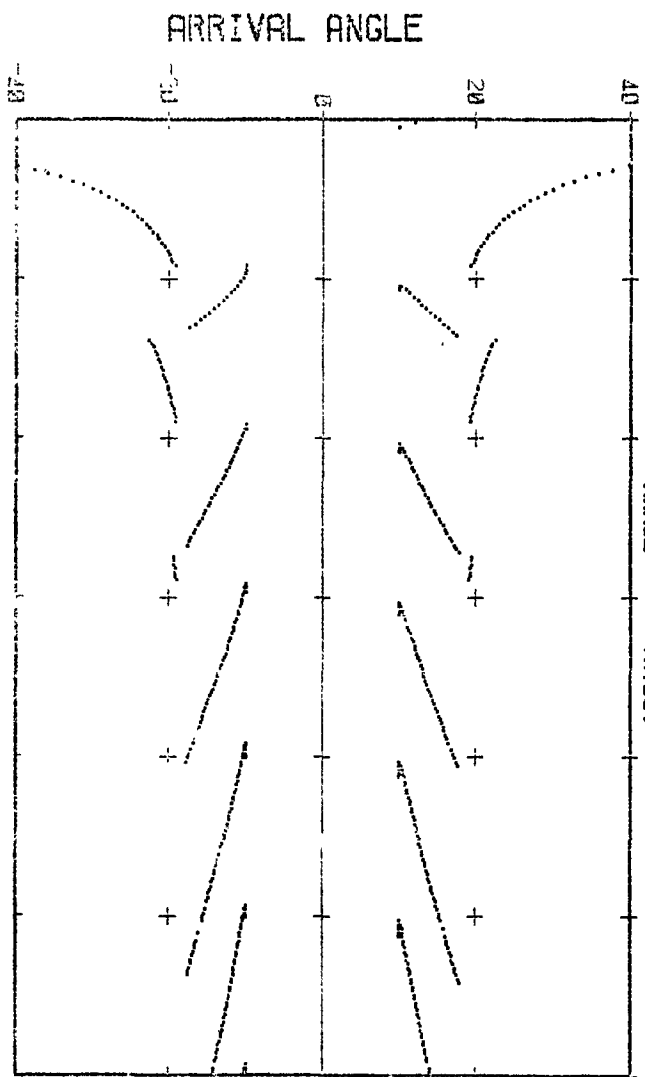
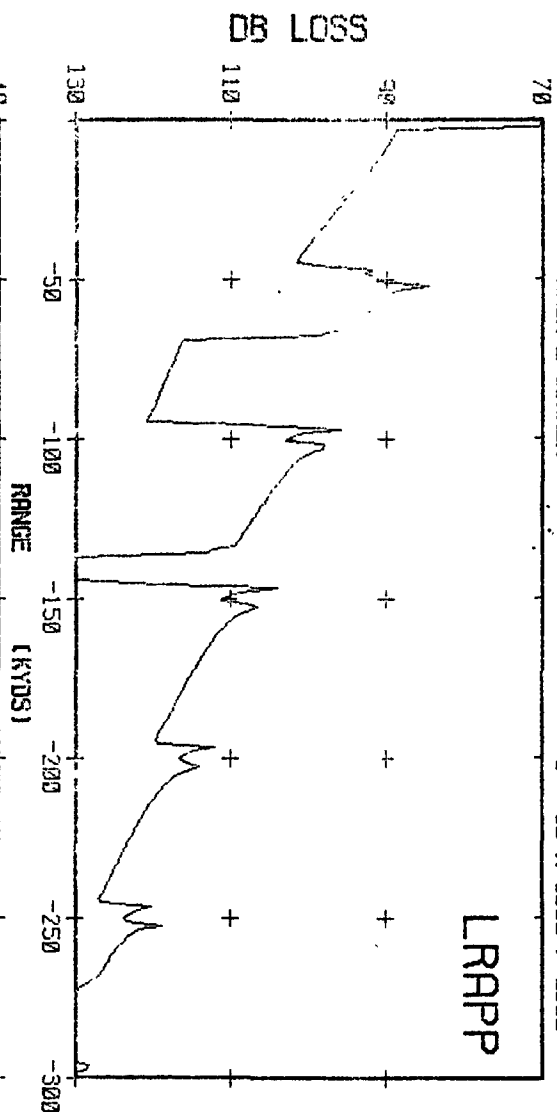
LRAPP



AREA 2 SUMMER

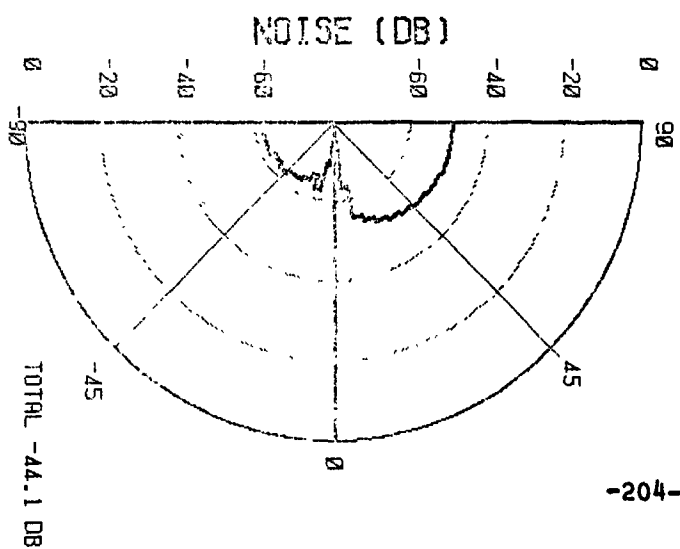
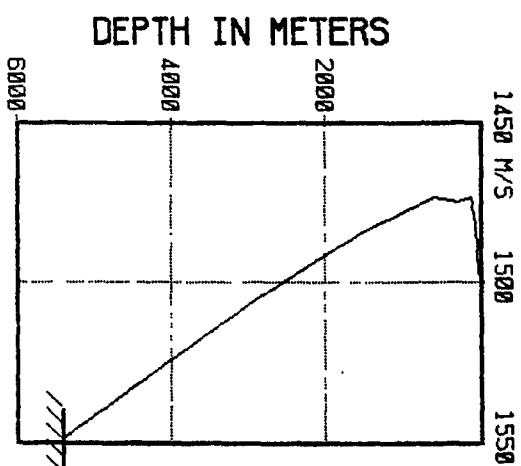
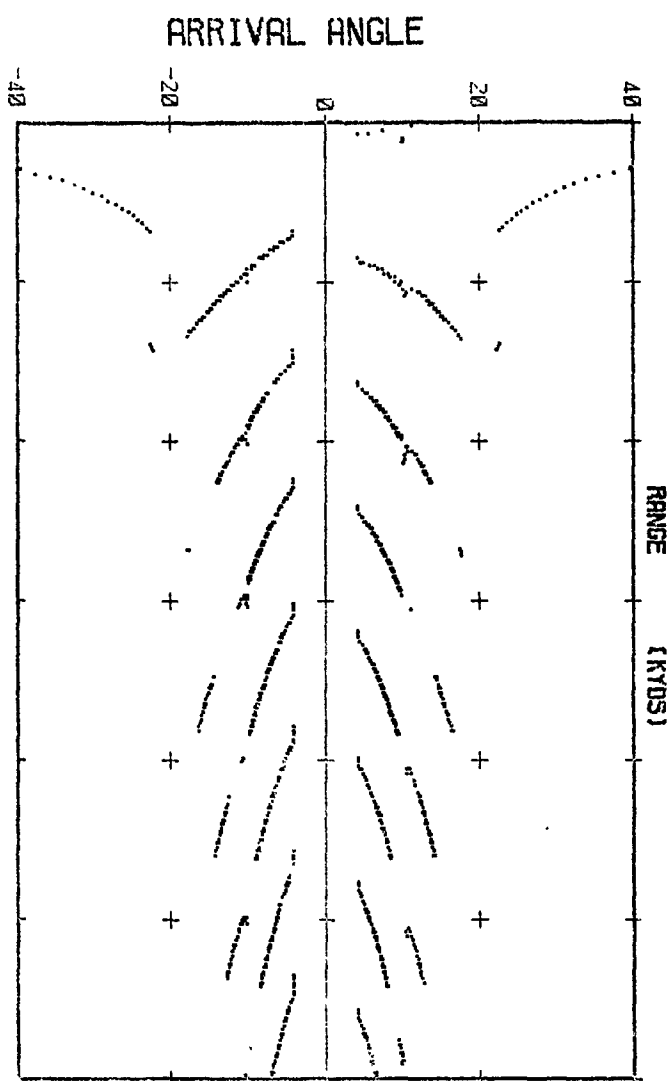
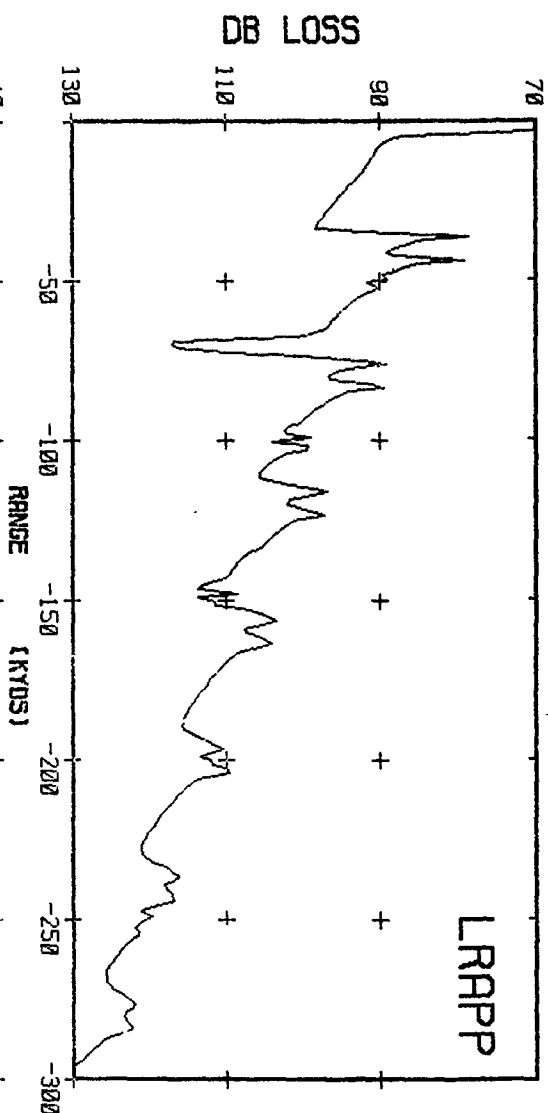
S 50 R 1000 F 2000

LRAPP



AREA 2 SUMMER

S 265 R 1000 F 2000

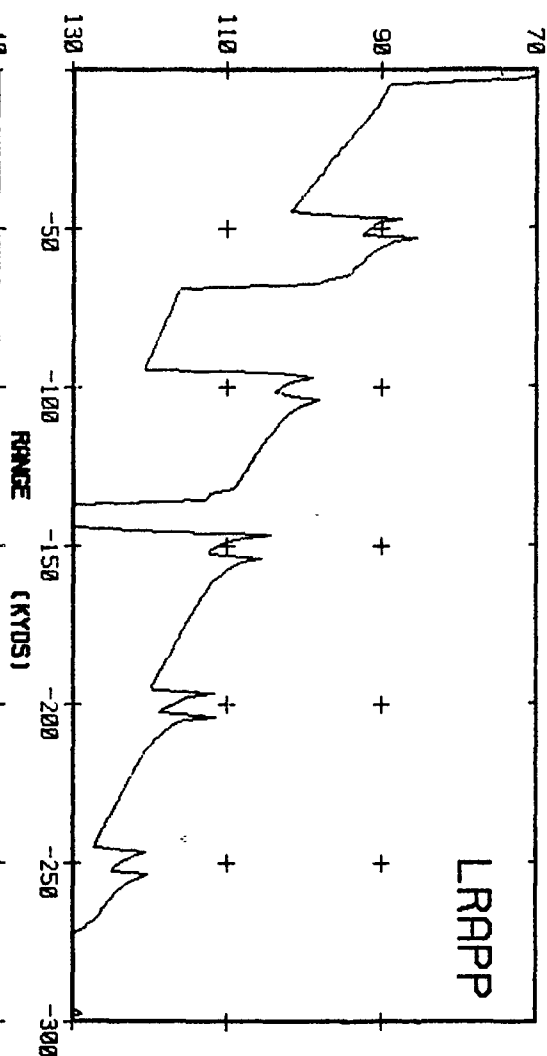


PRER 2 SUMMER

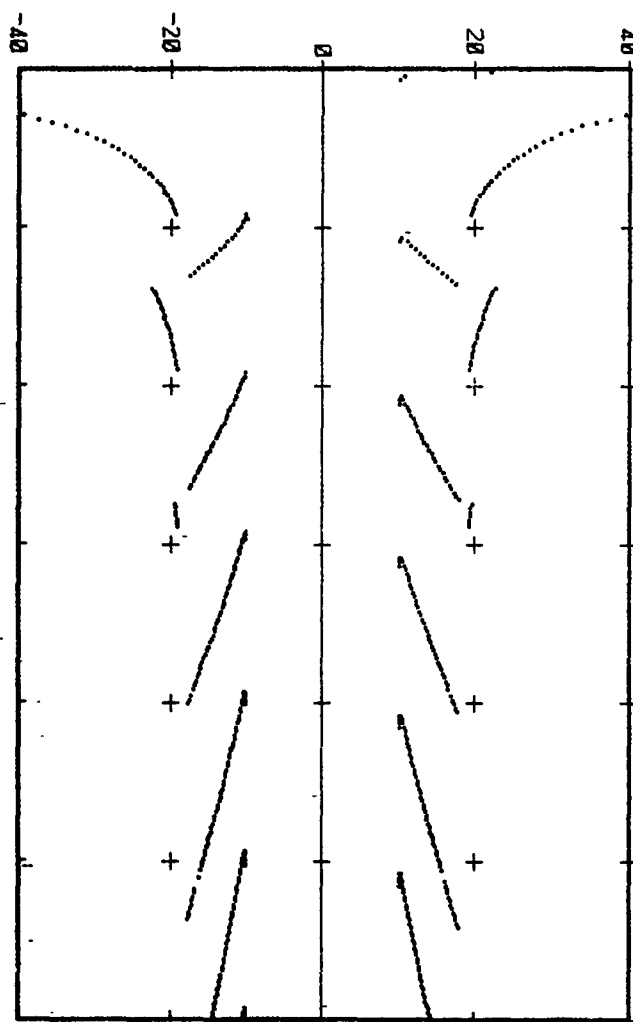
S 20 R 1500 F 2000

LRAPP

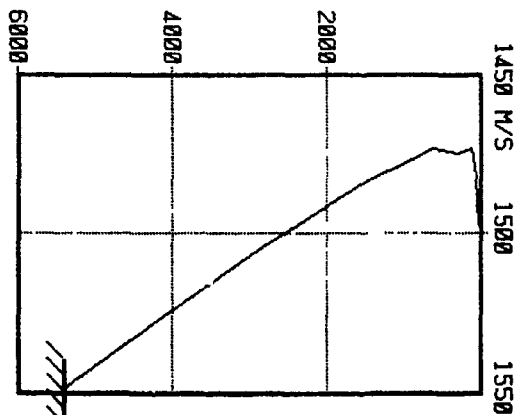
DB LOSS



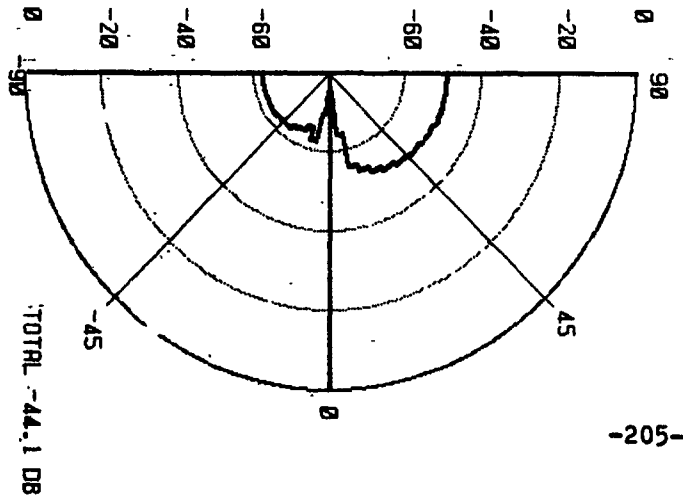
ARRIVAL ANGLE



DEPTH IN METERS



NOISE (DB)



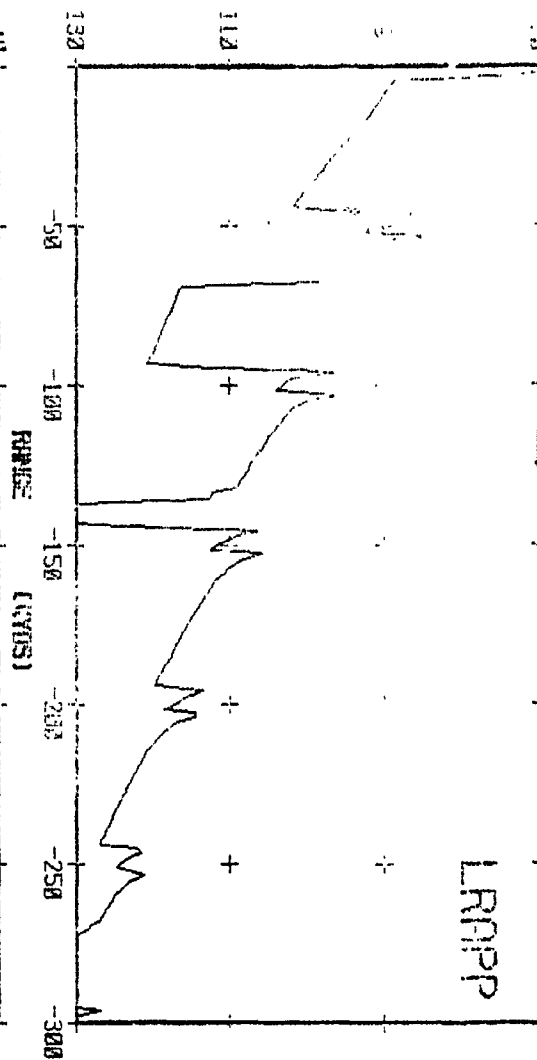
-205-

PH-2 SLIPPER

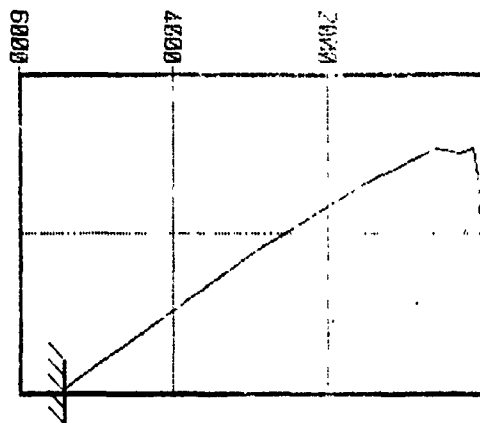
S 51 R 1500 F 26.00

1450 M/S 1500 1550

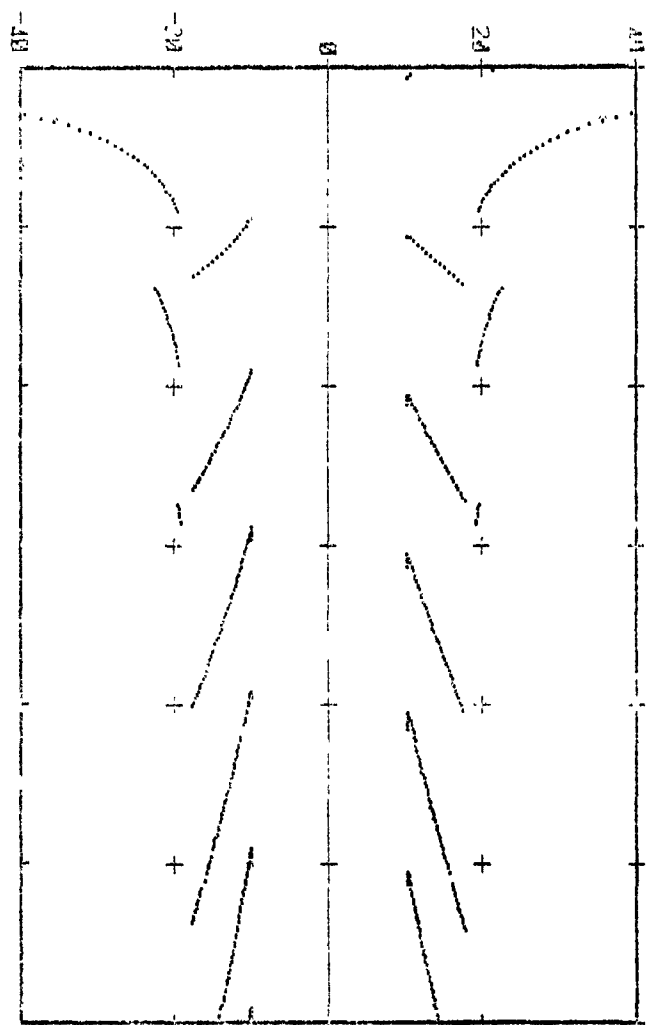
DB LOSS



DEPTH IN METERS



ARRIVAL ANGLE



NOISE (DB)

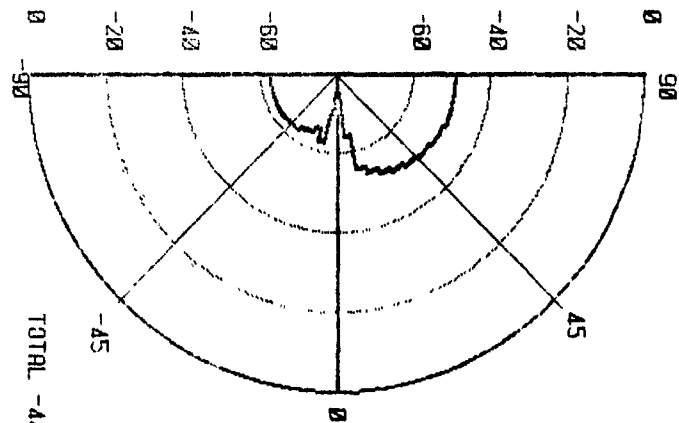
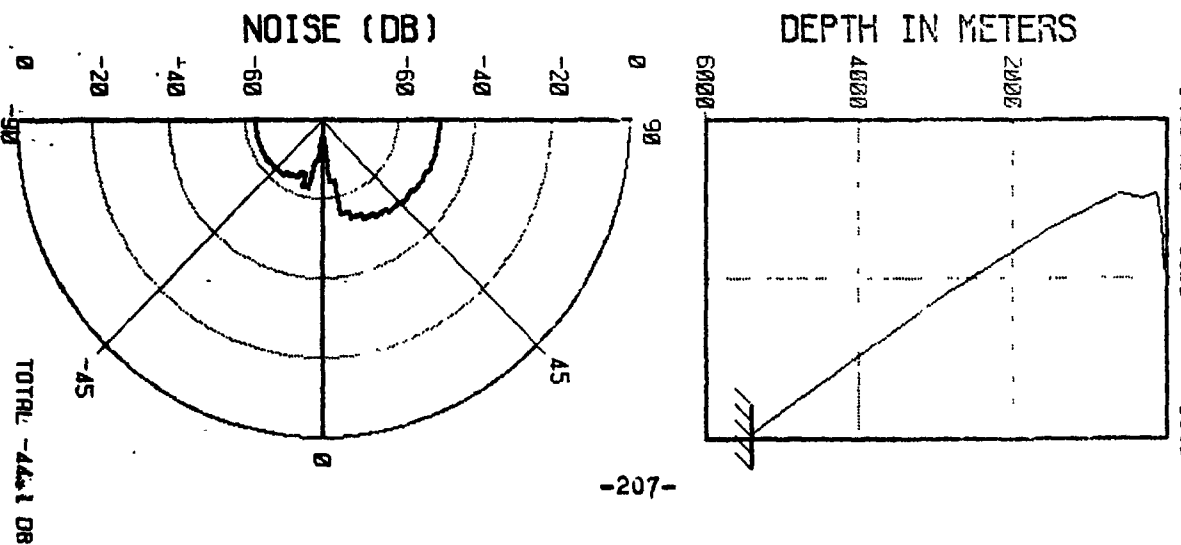
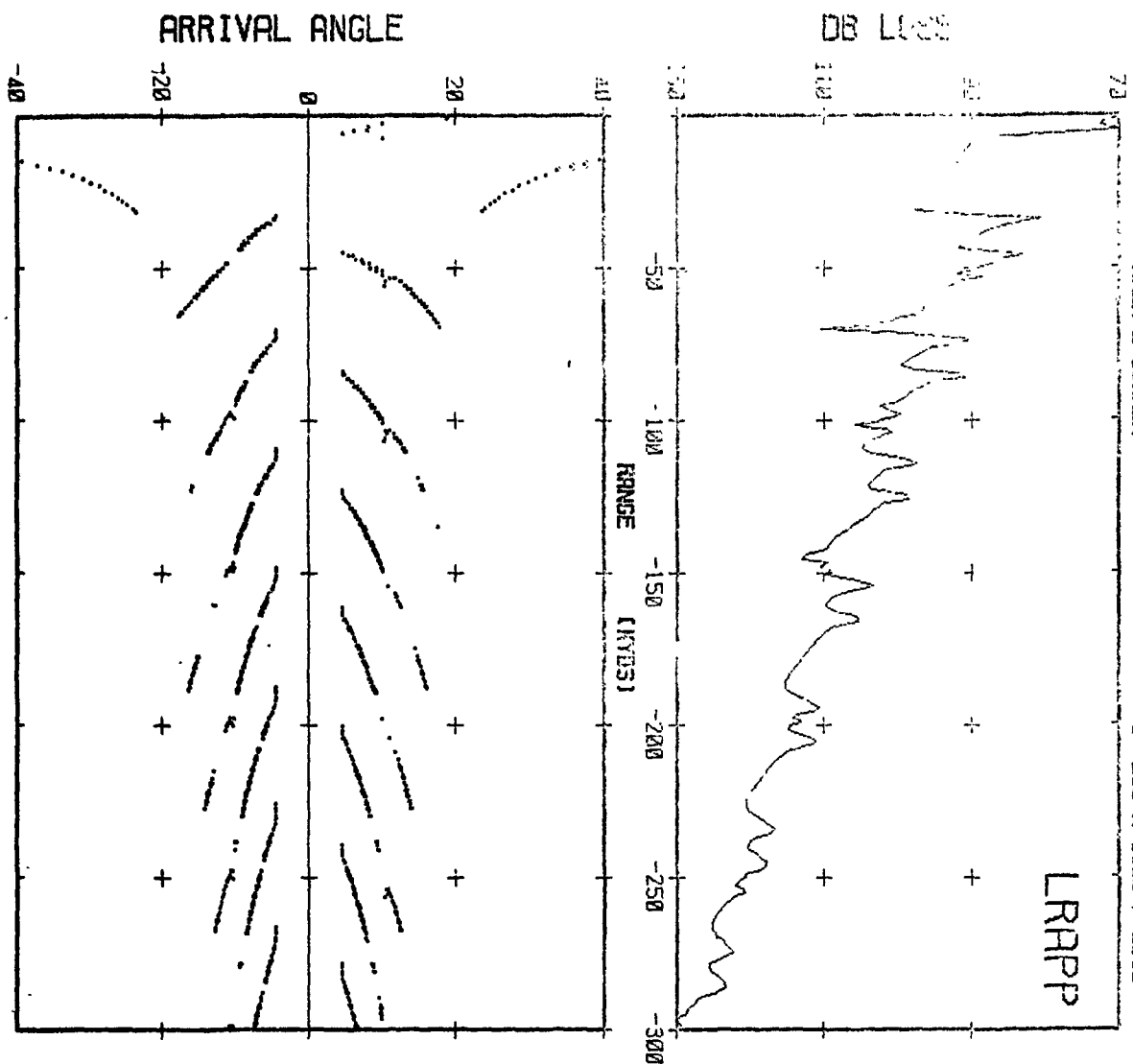


FIGURE 2 SURFER

S 203 R 1513 F 2033

1450 M/S 1500 1550

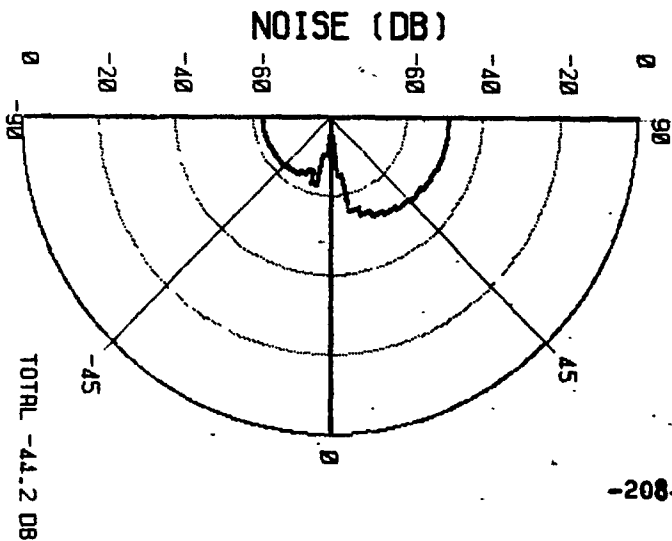
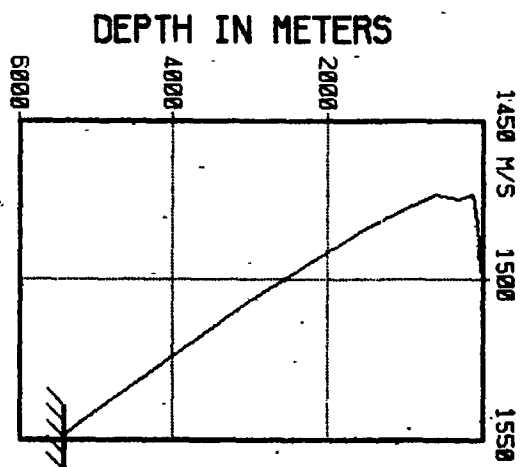
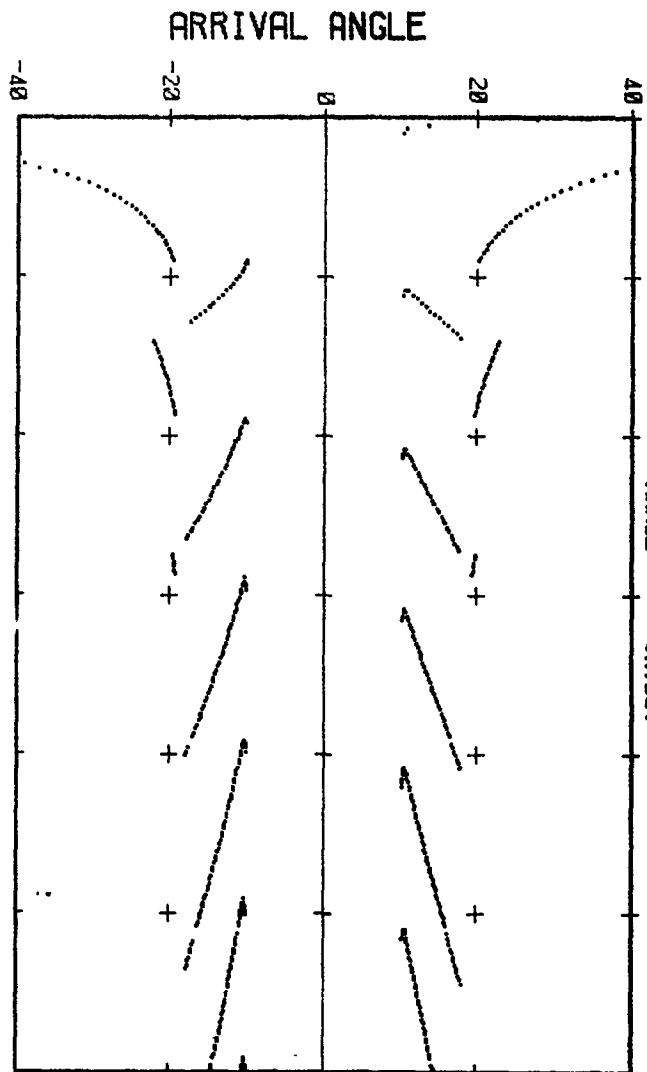
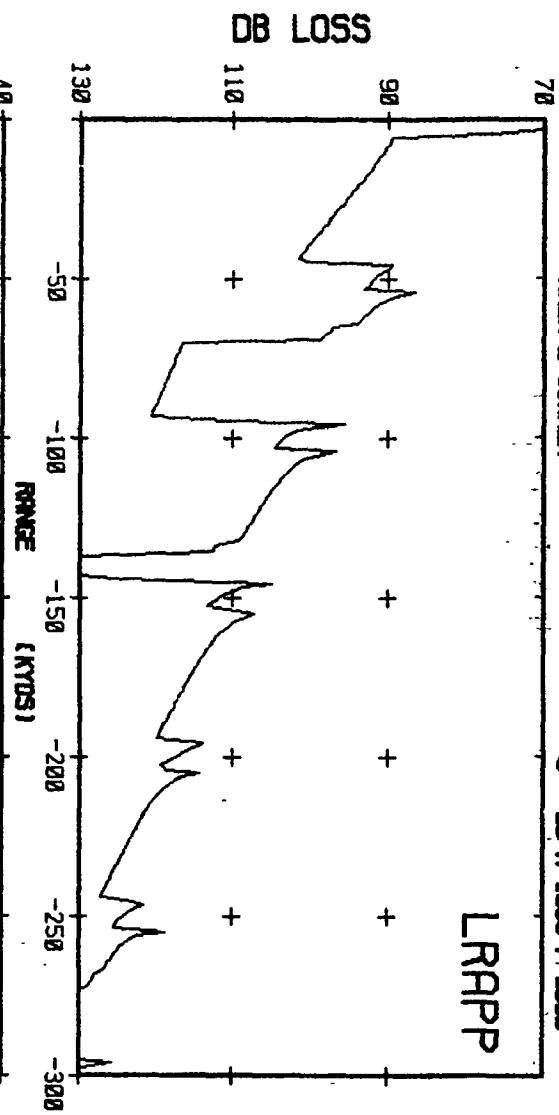




AREA 2 SUMMER

S 20 R 1988 F 2000

LRAPP

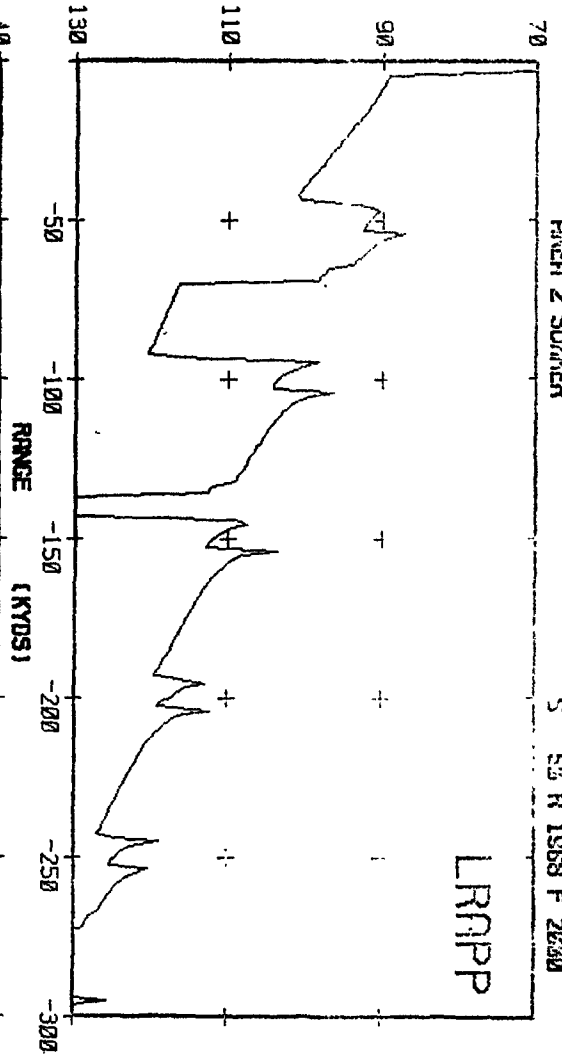


PRER 2 SUMMER

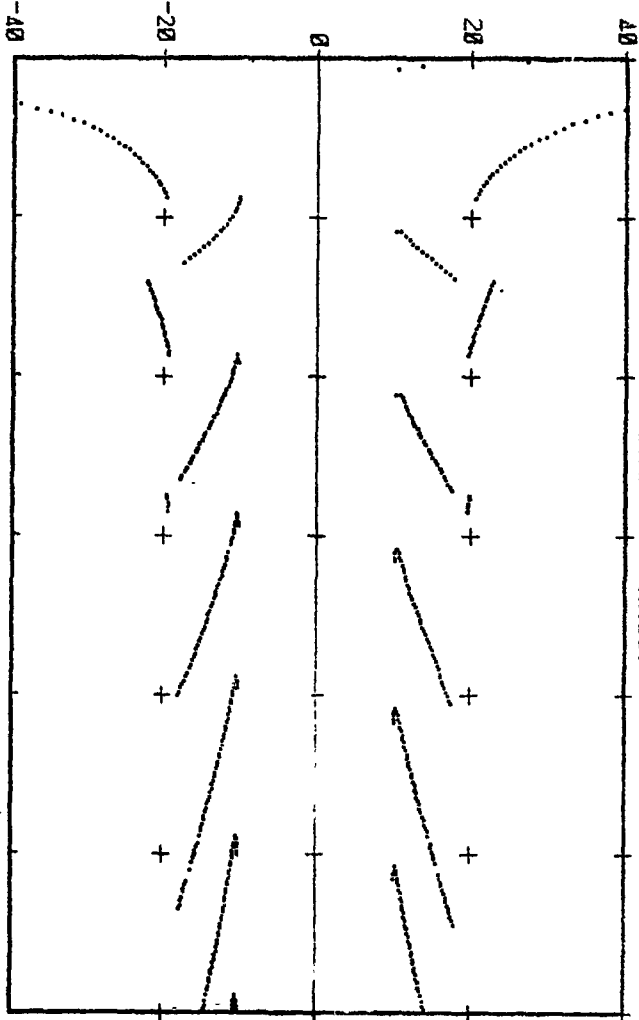
5 EQ R 1568 F 2620

1450 M/S 1500 1550

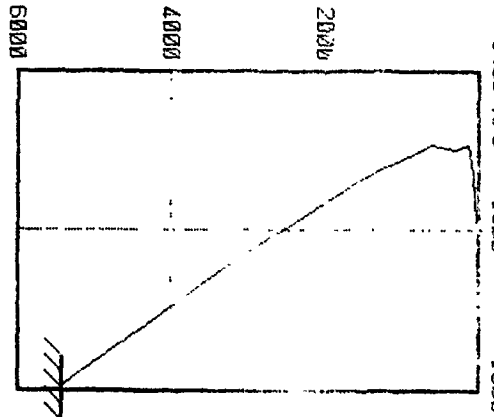
DB LOSS



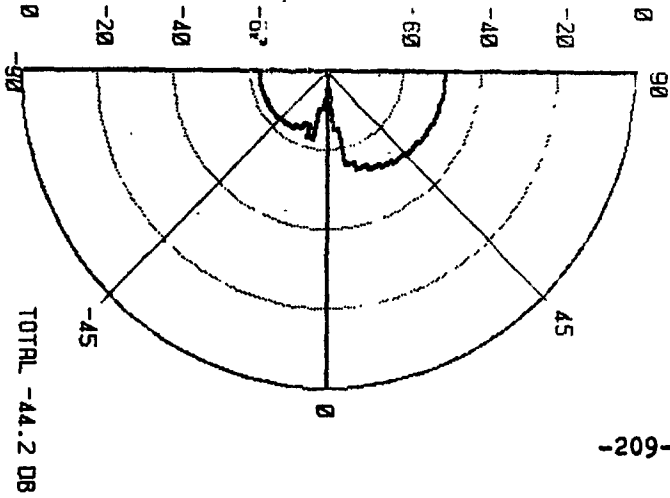
ARRIVAL ANGLE



DEPTH IN METERS



NOISE (DB)

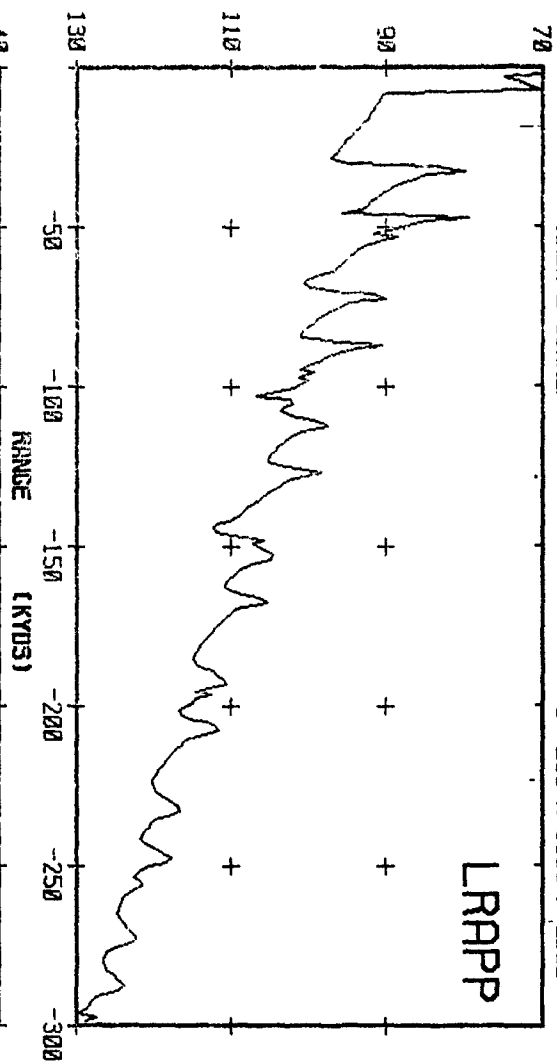


AREA 2 SUMMER

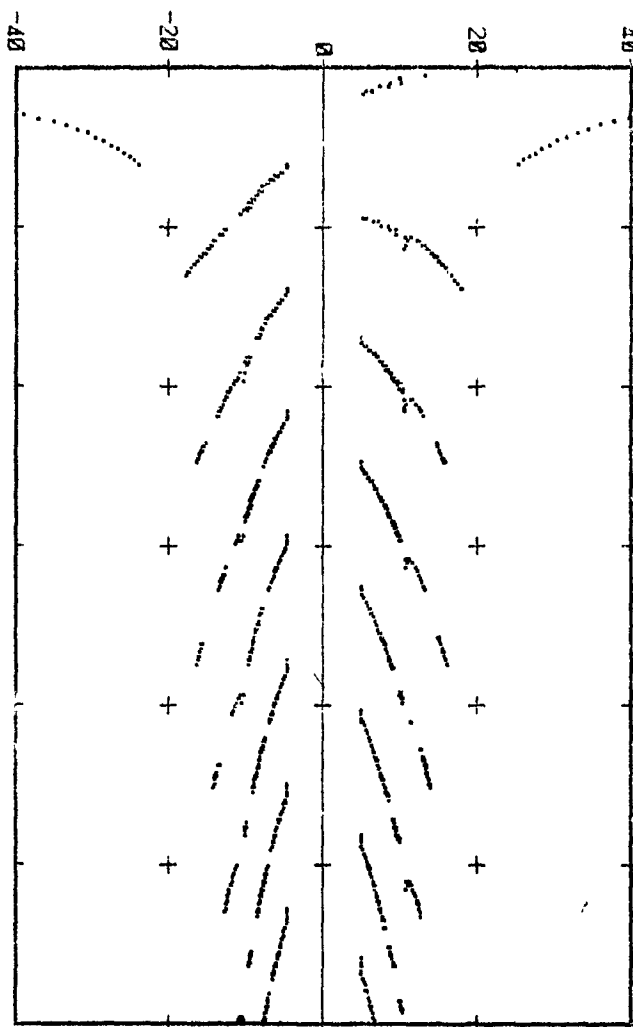
S 206 R 1968 F 2000

LRAPP

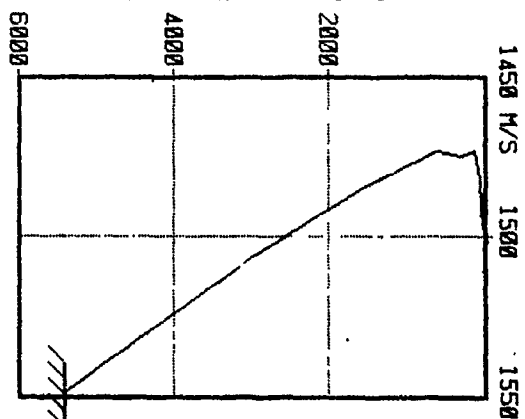
DB LOSS



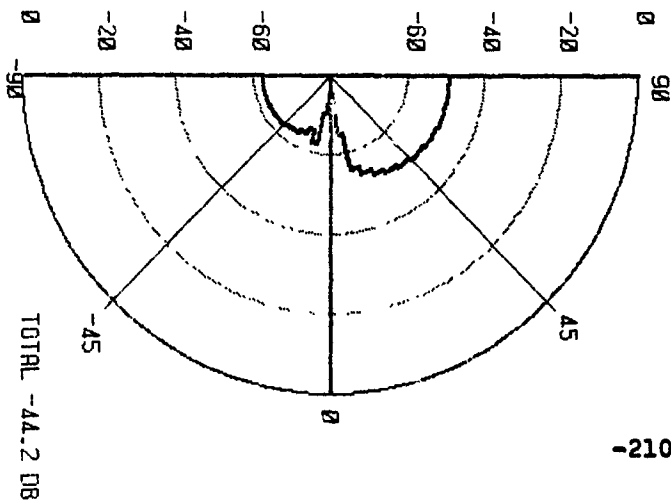
ARRIVAL ANGLE



DEPTH IN METERS



NOISE (DB)

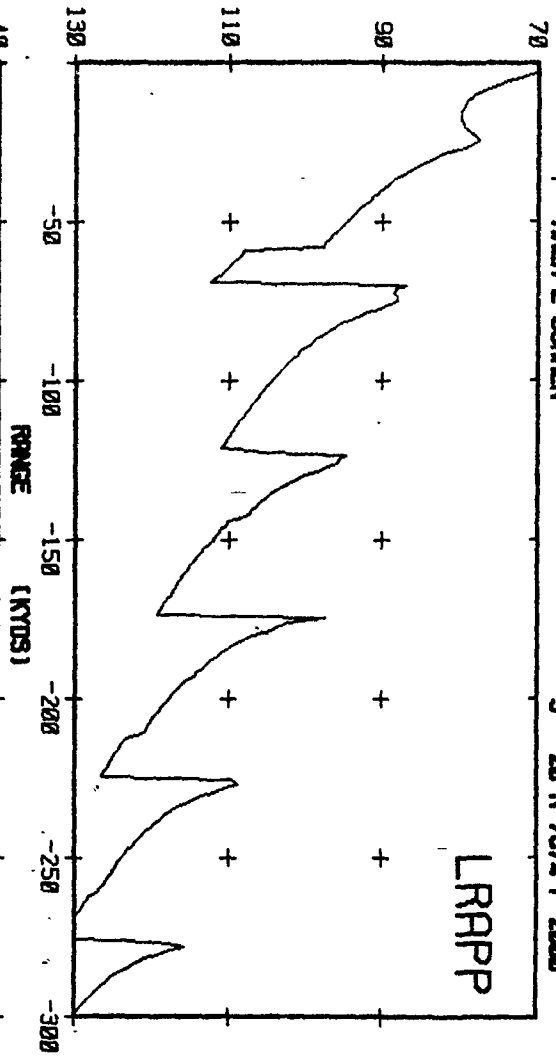


AREA 2 SUMMER

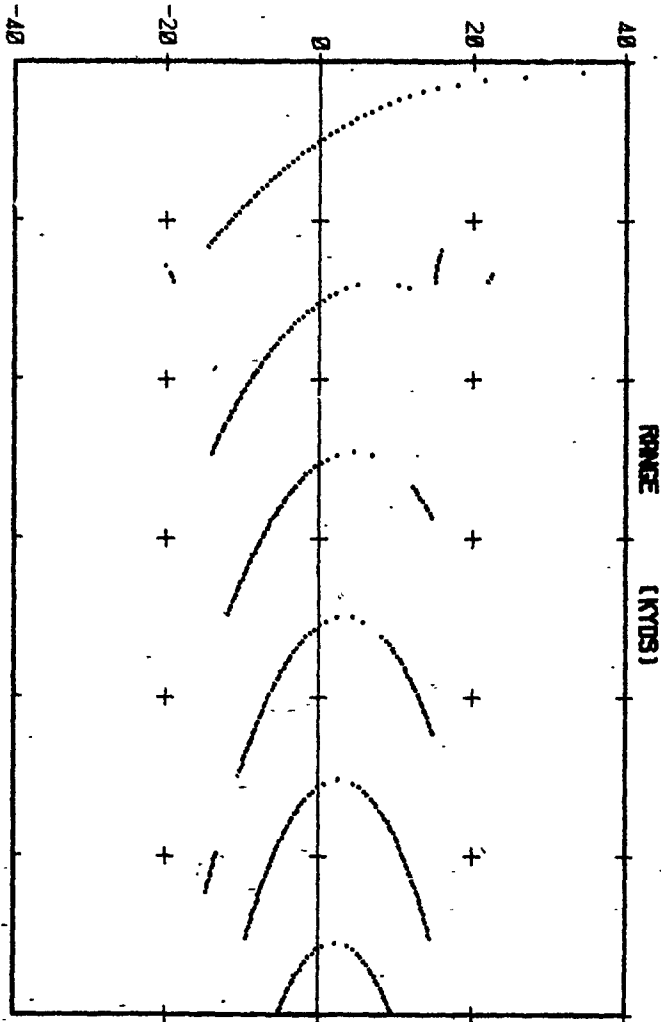
S 20 R 7874 F 2000

1450 M/S 1500 1550

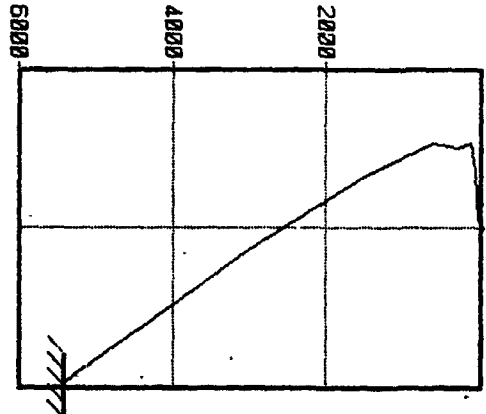
DB LOSS



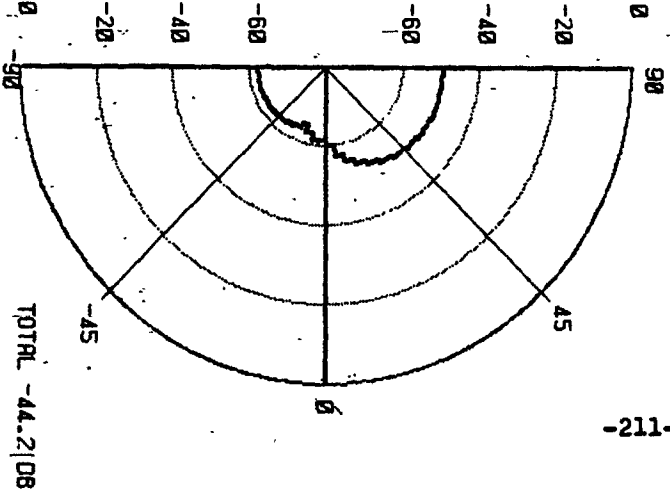
ARRIVAL ANGLE



DEPTH IN METERS



NOISE (DB)

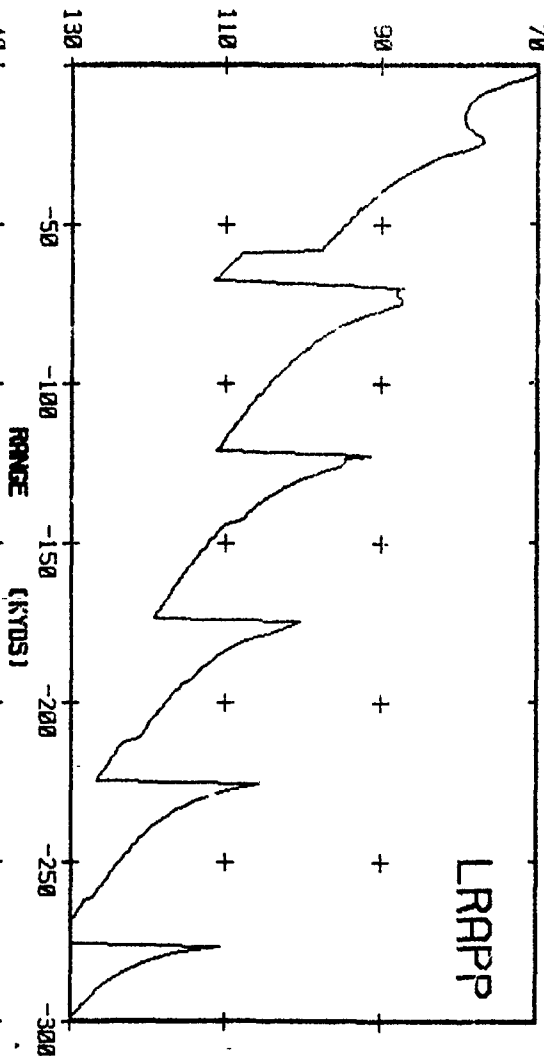


AREA 2 SUMMER

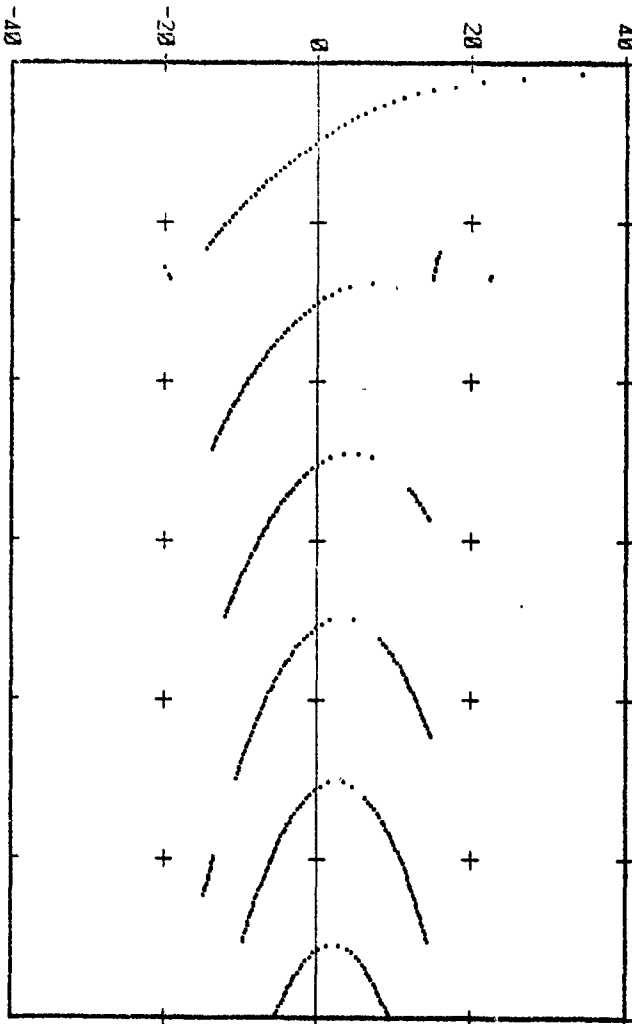
S 50 R 7674 F 2000

LRAPP

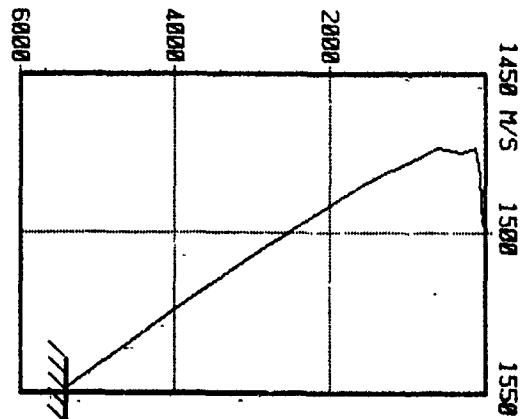
DB LOSS



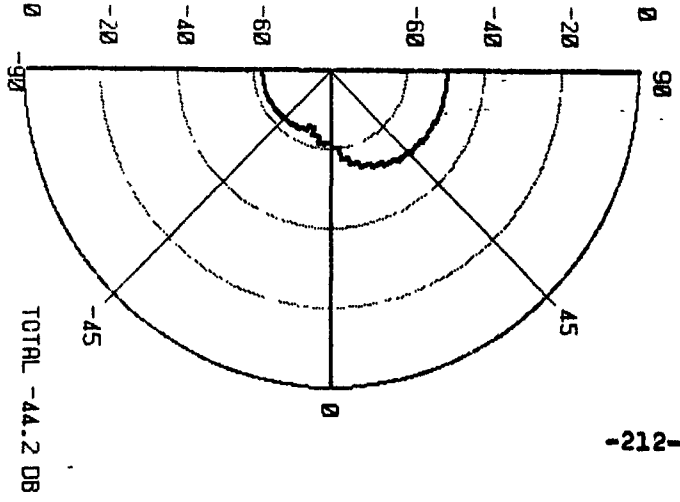
ARRIVAL ANGLE



DEPTH IN METERS



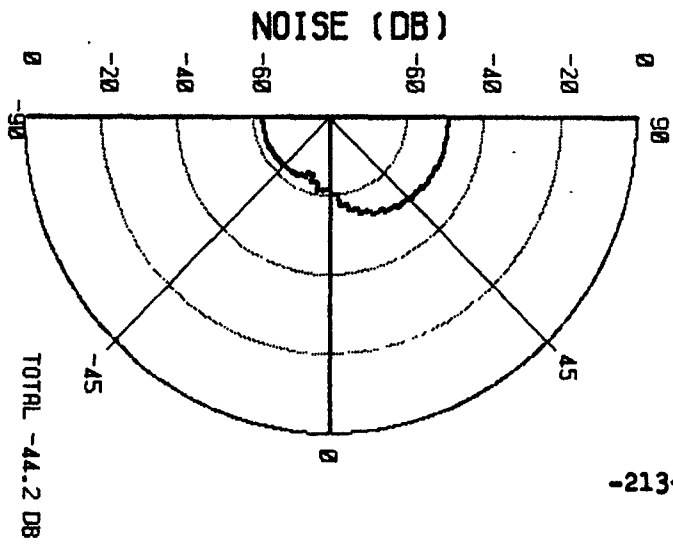
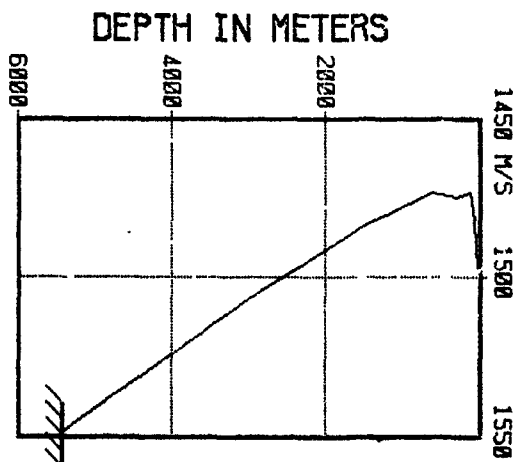
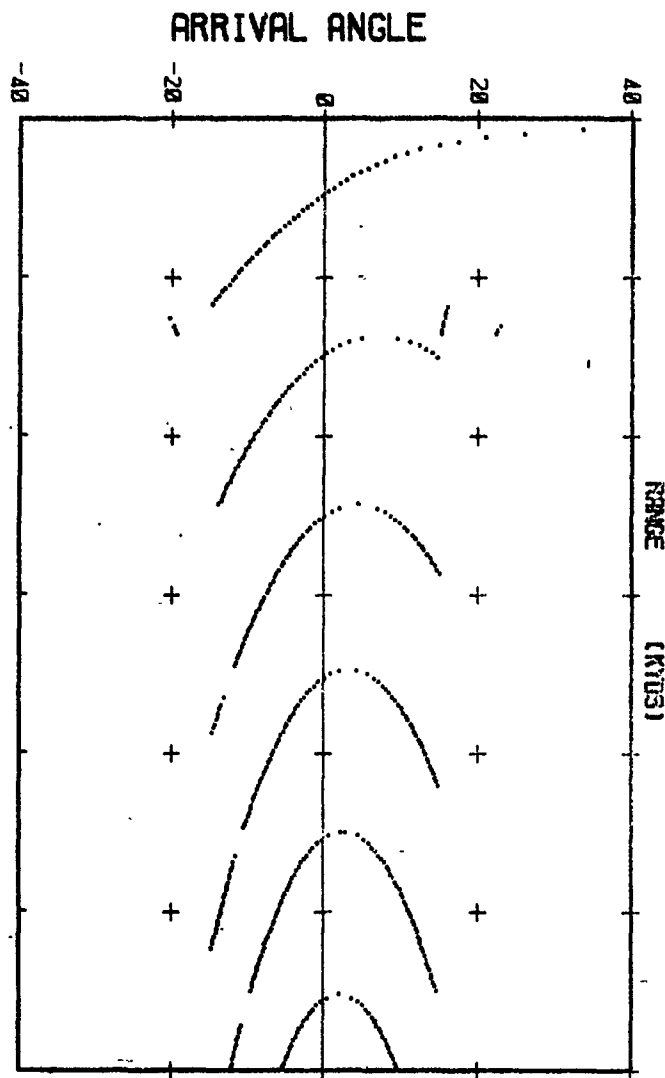
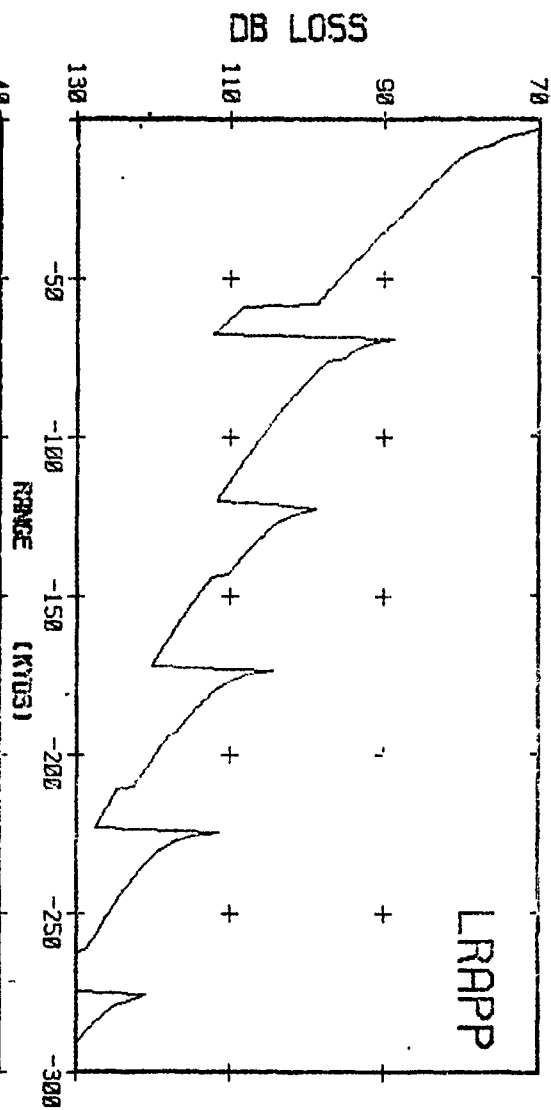
NOISE (DB)



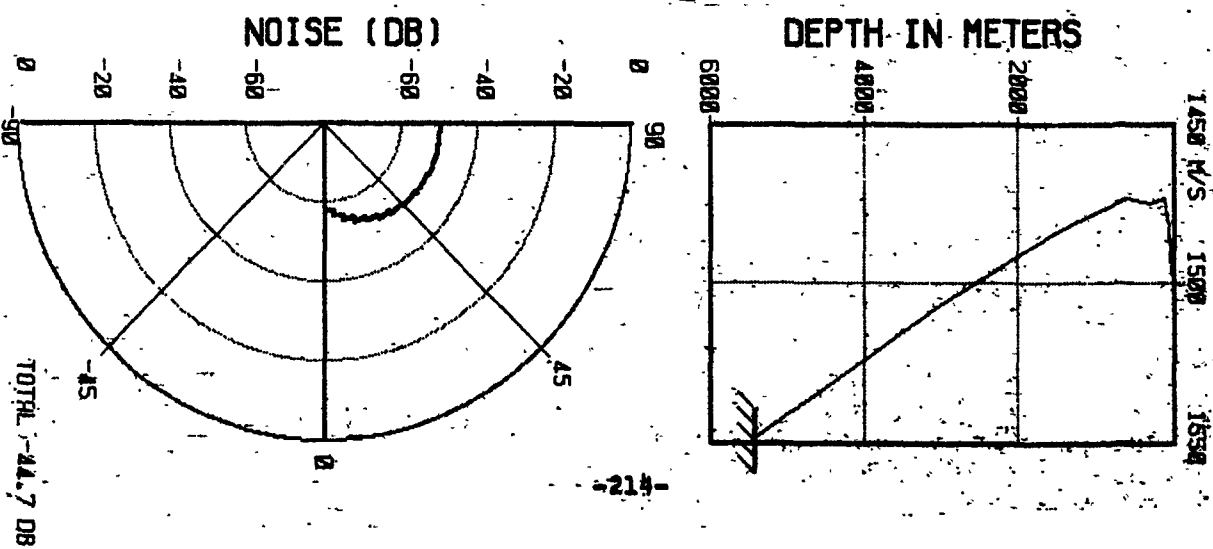
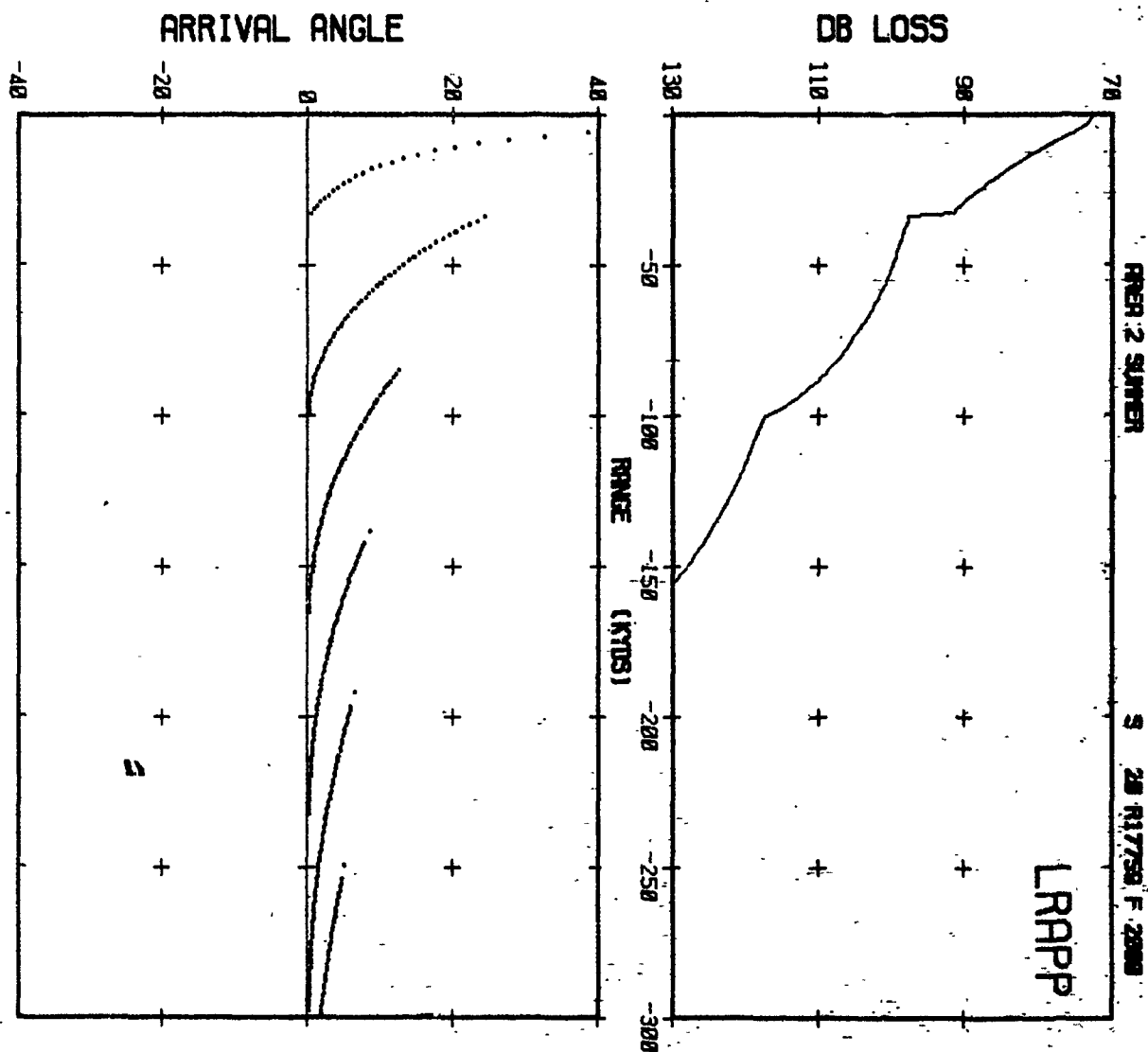
AREA 2 SUMMER

3 203 R 76/4 F 2000

LRAPP



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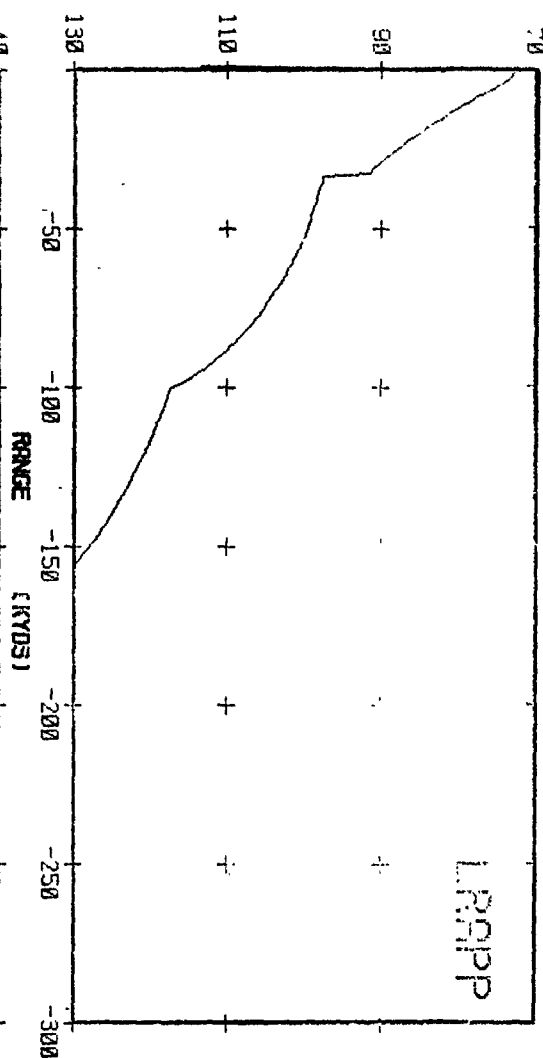


AREA 2 SLIDER

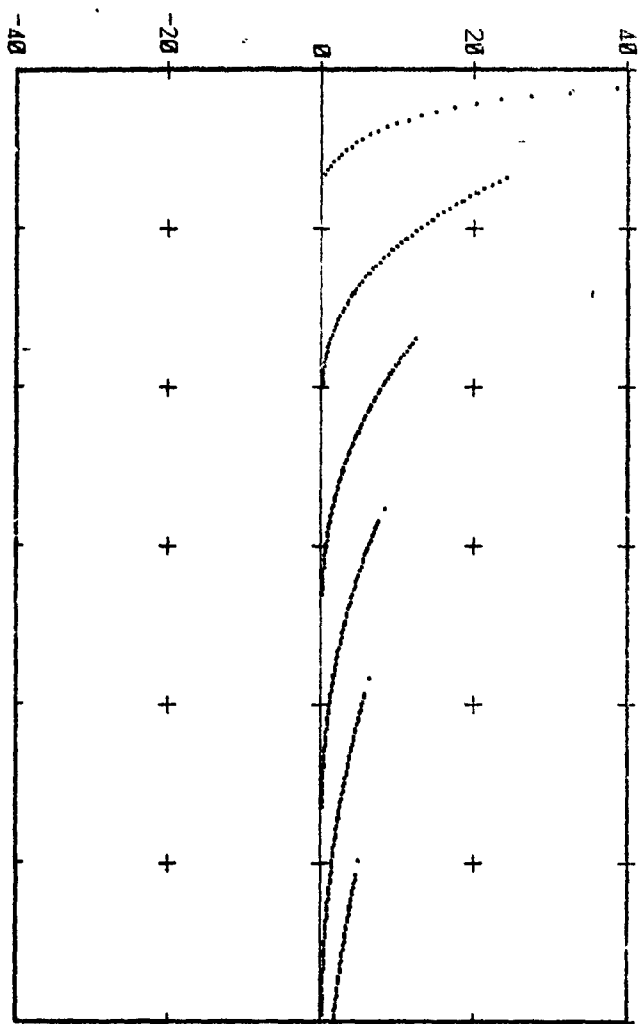
SLIDER F 2013

1450 M/S 1500 1550

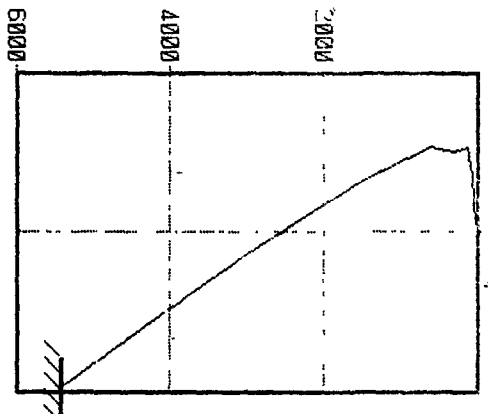
DB LOSS



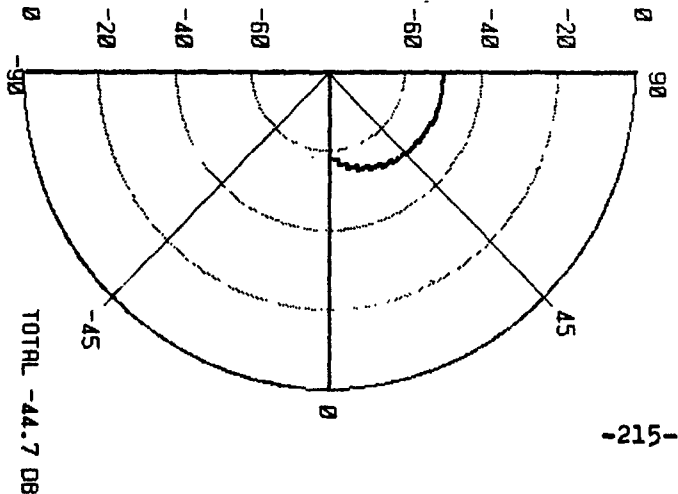
ARRIVAL ANGLE



DEPTH IN METERS



NOISE (DB)



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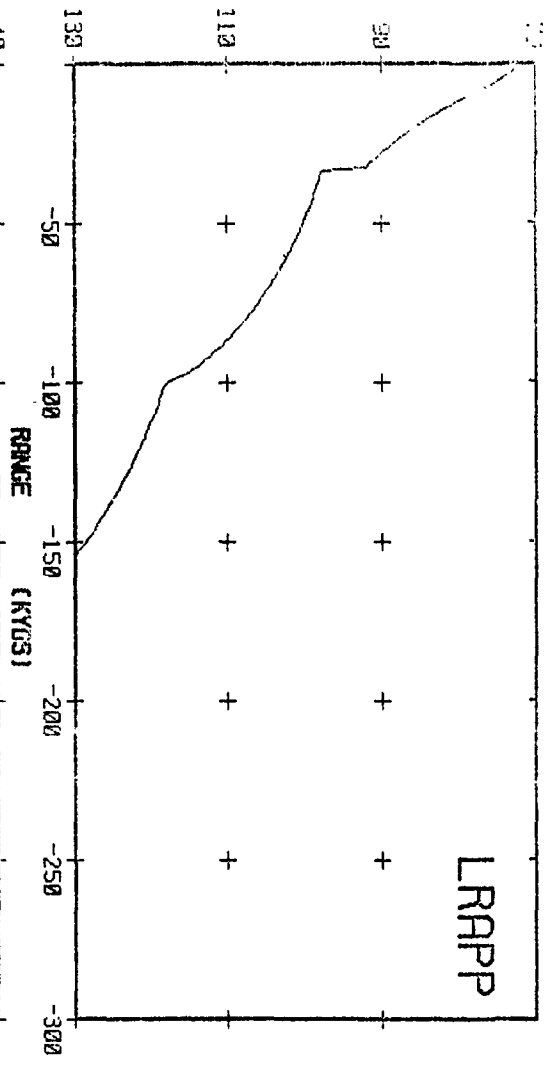


Page 2 of 10

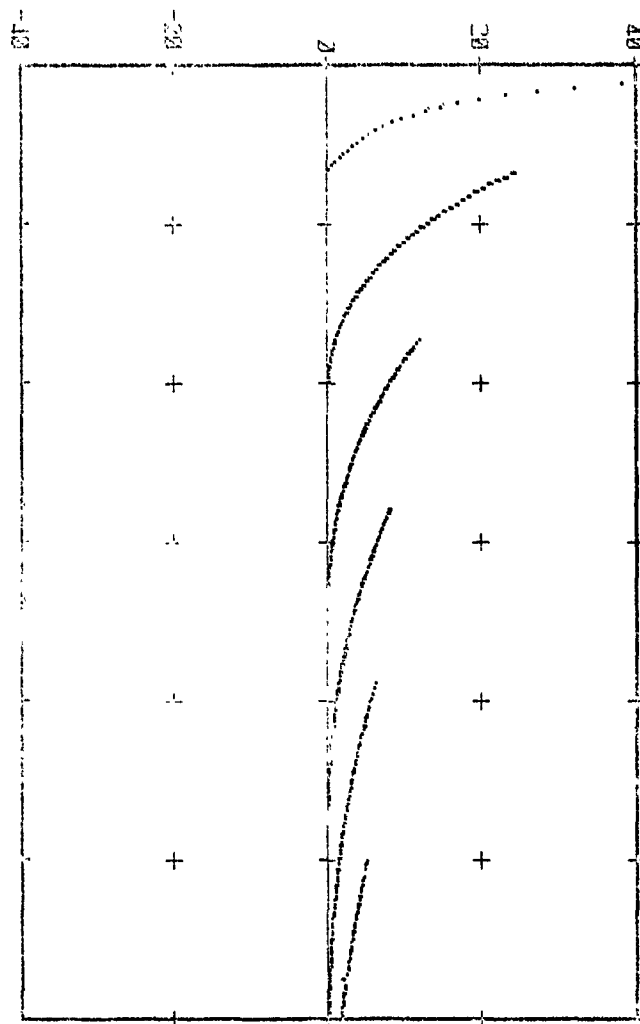
3 228 R17753 F 2600

LRAPP

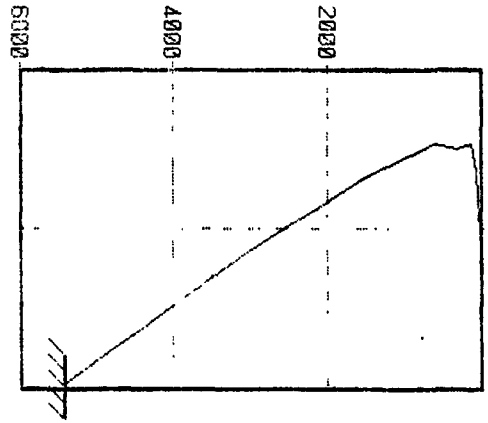
DB LOSS



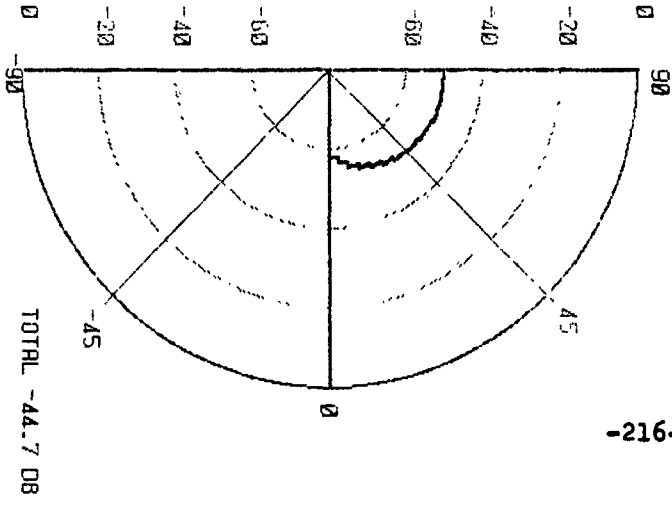
ARRIVAL ANGLE



DEPTH IN METERS



NOISE (DB)

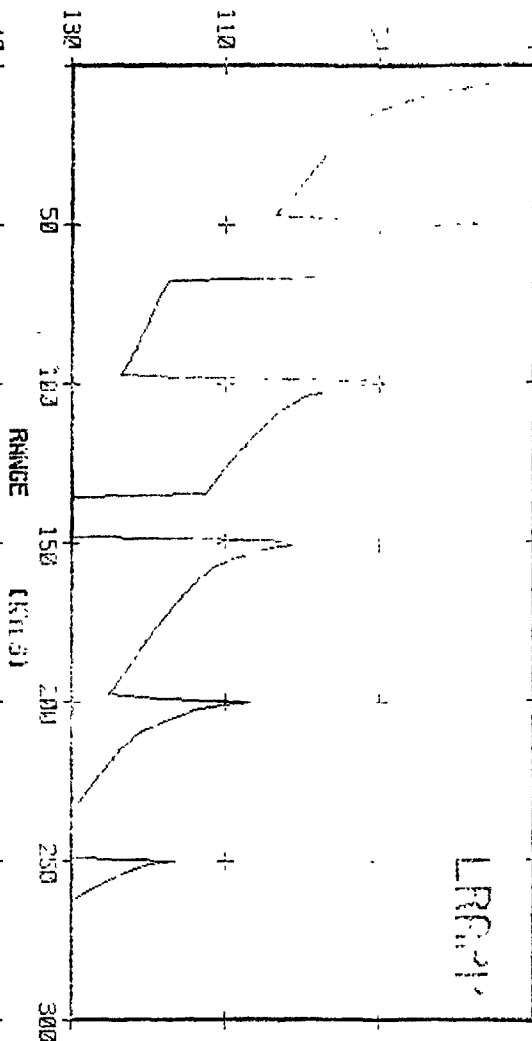


STATION 1000

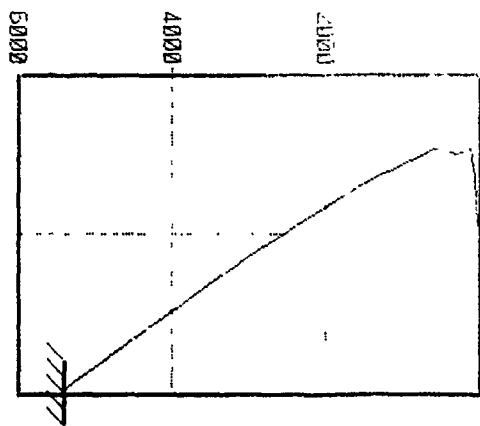
S 20 N 60 E 2000

1700 1000 1500 1550

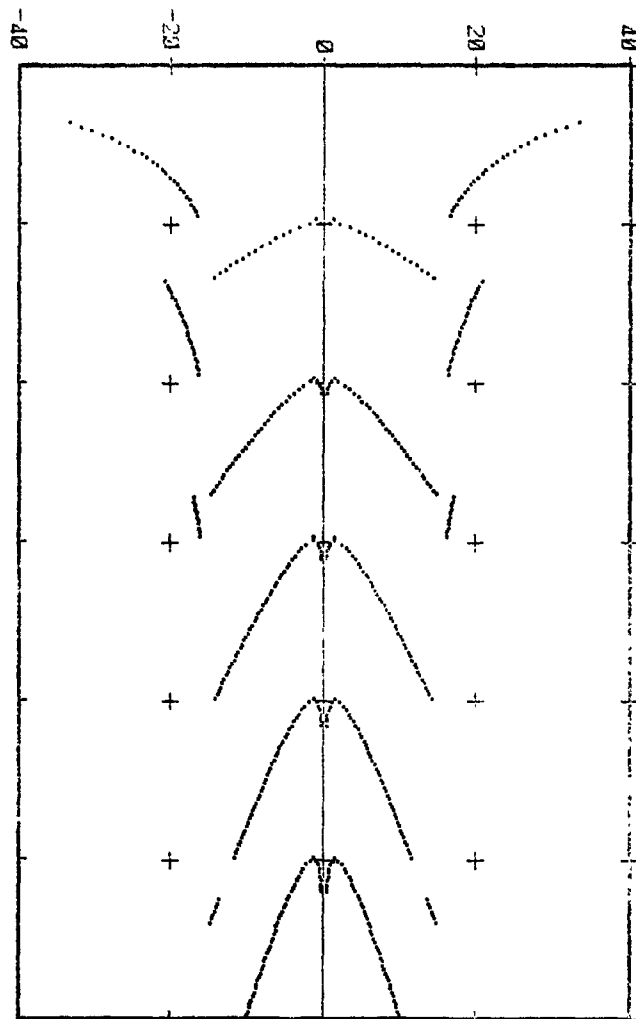
DB LOSS



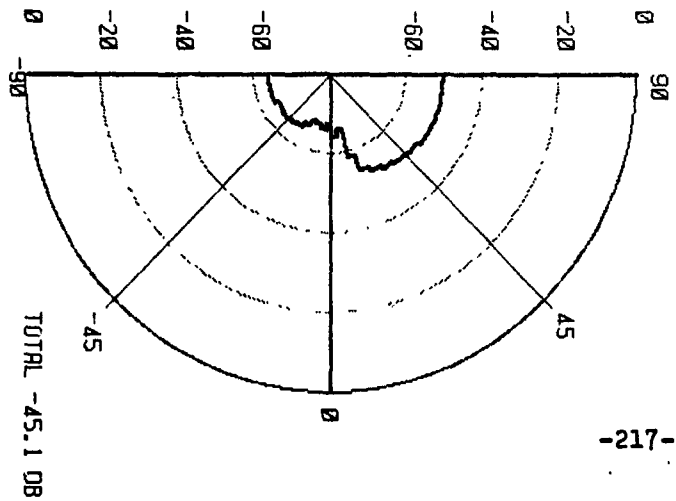
DEPTH IN METERS

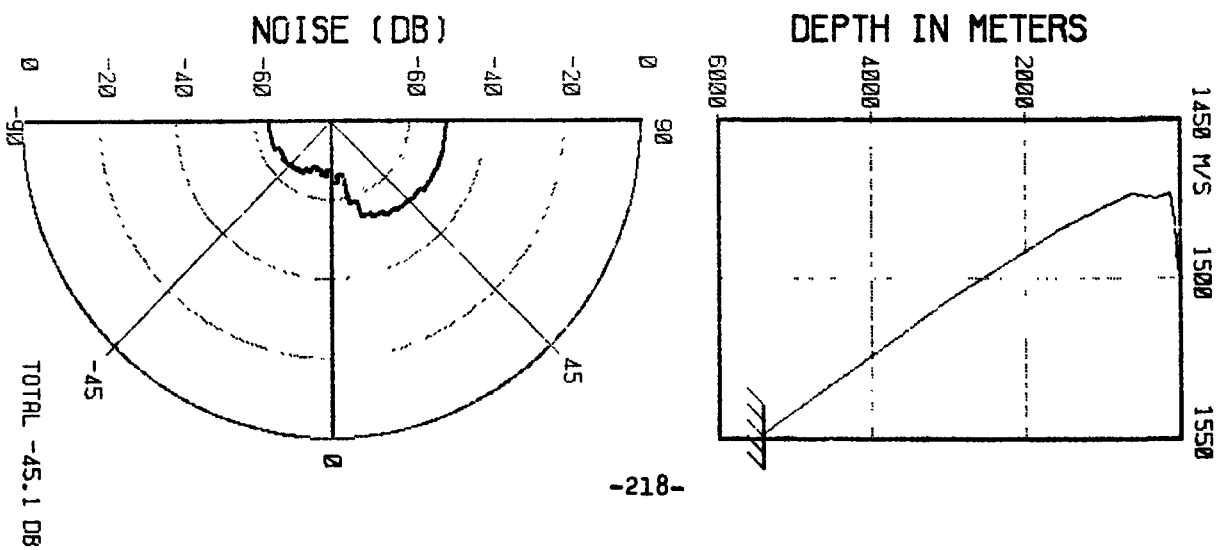
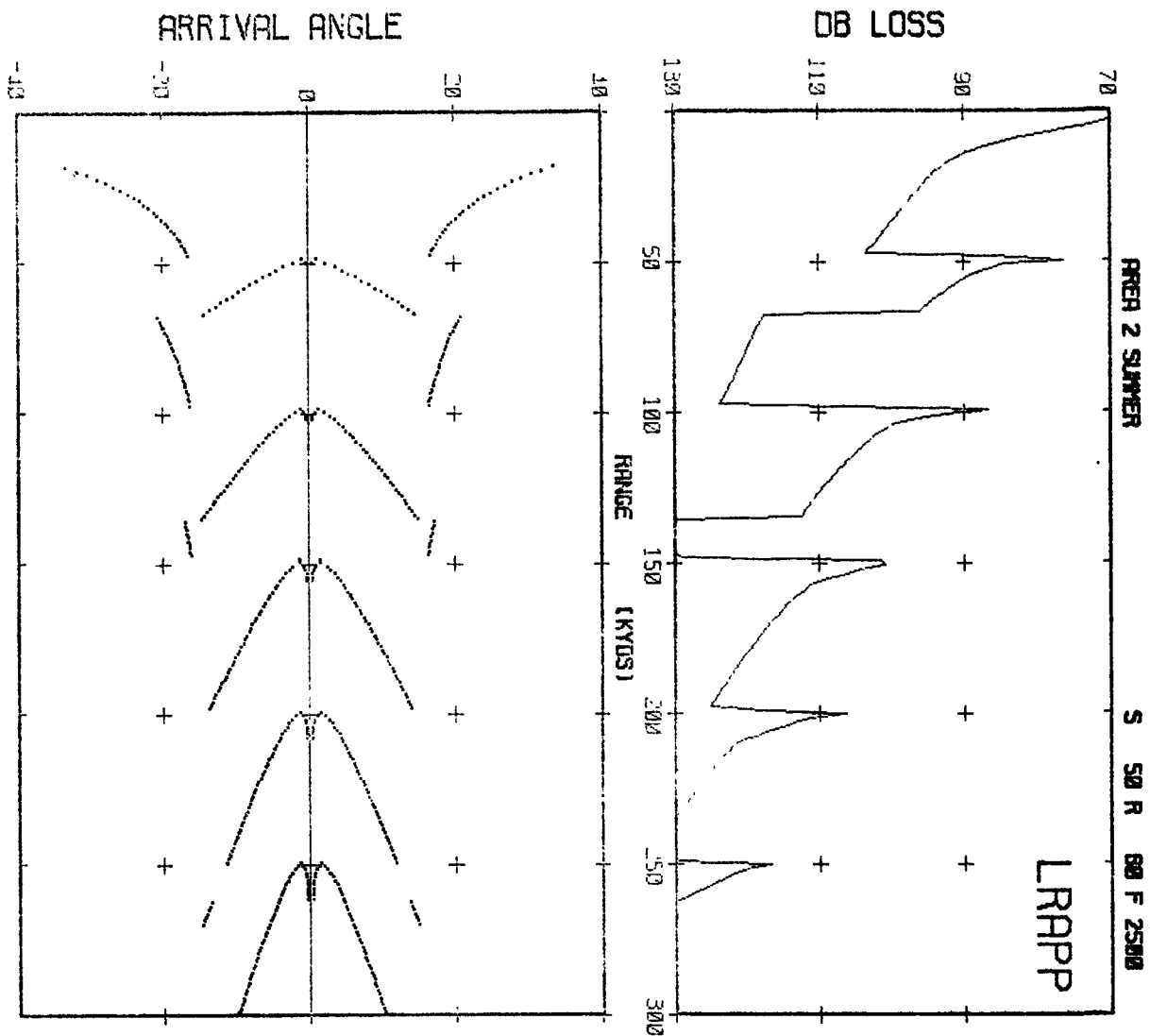


ARRIVAL ANGLE



NOISE (DB)

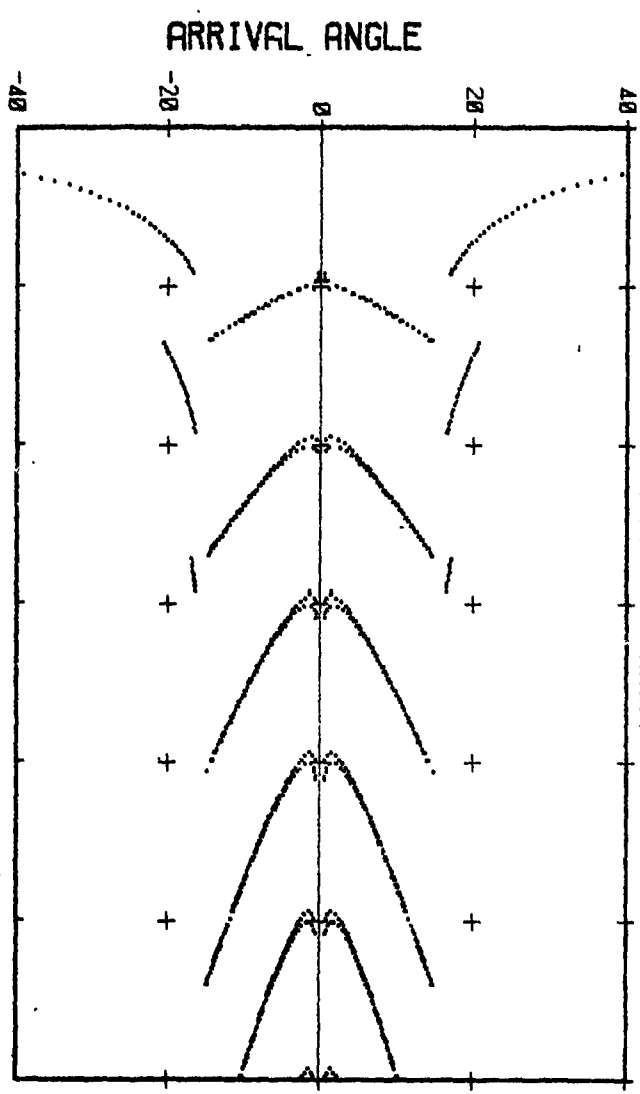
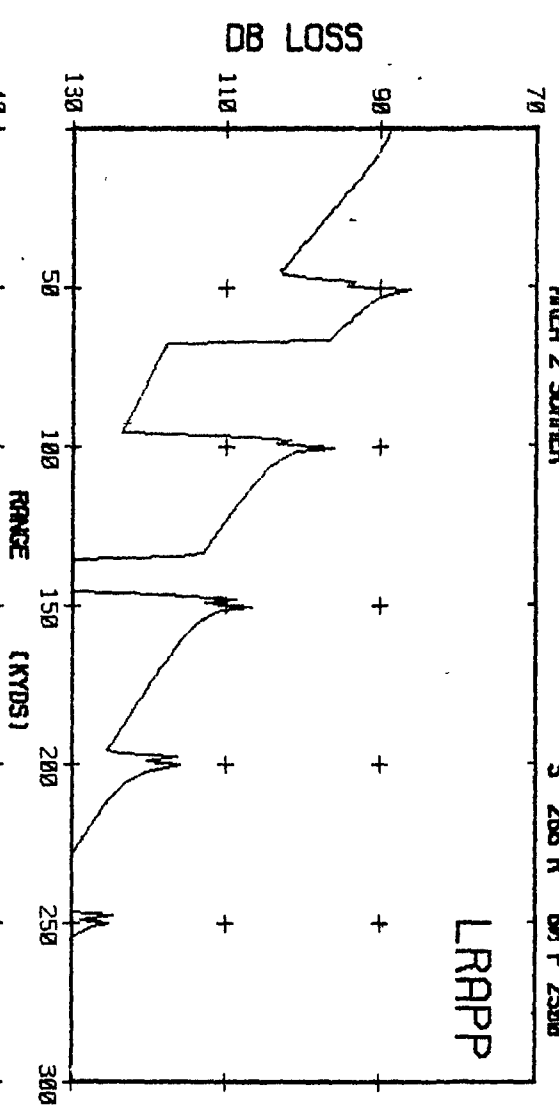




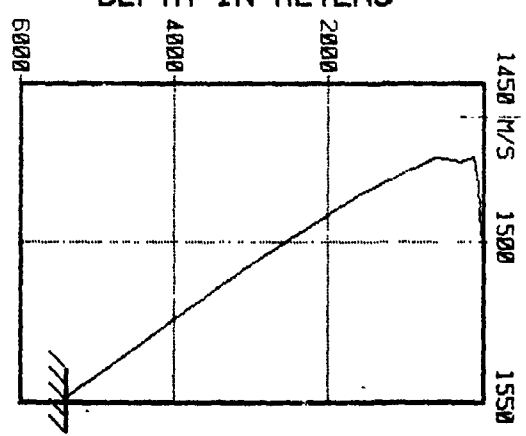
PRER 2 SUMMER

S 266 R 69 F 2500

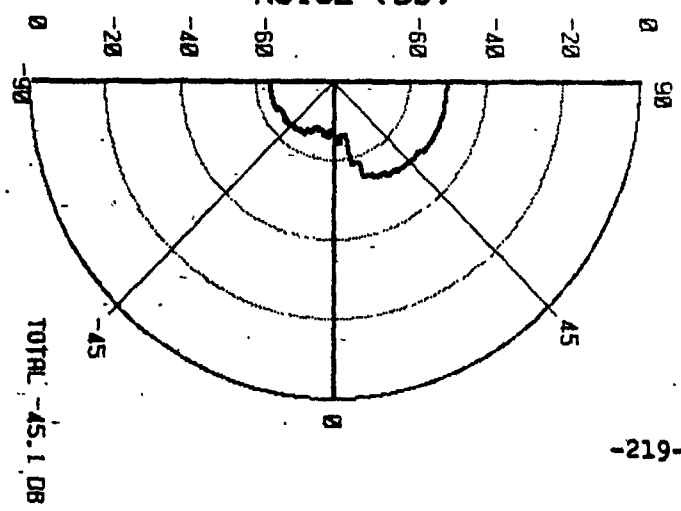
LRAPP

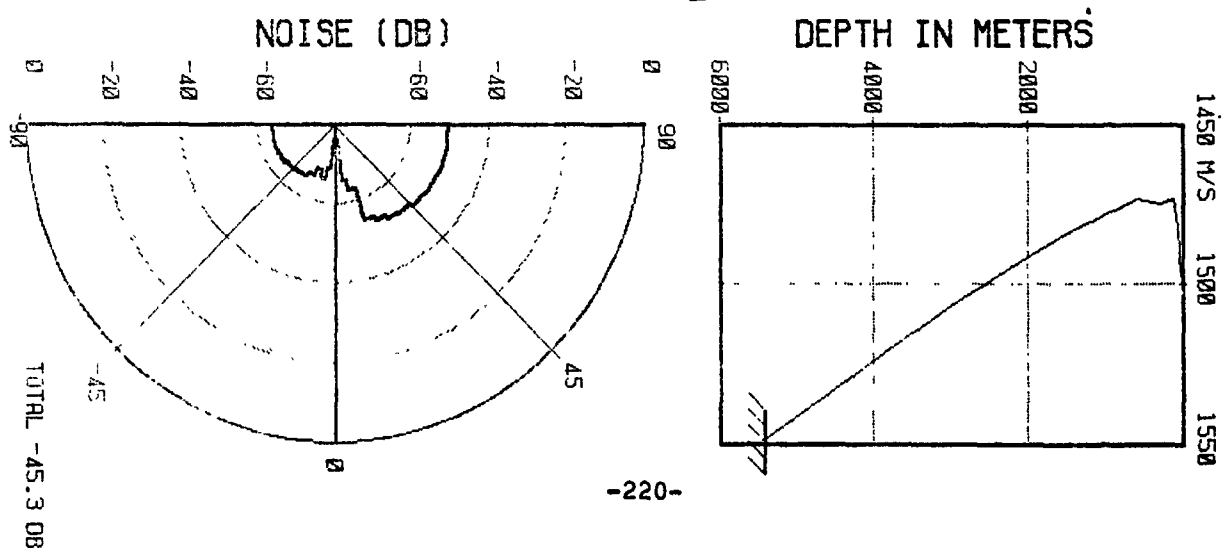
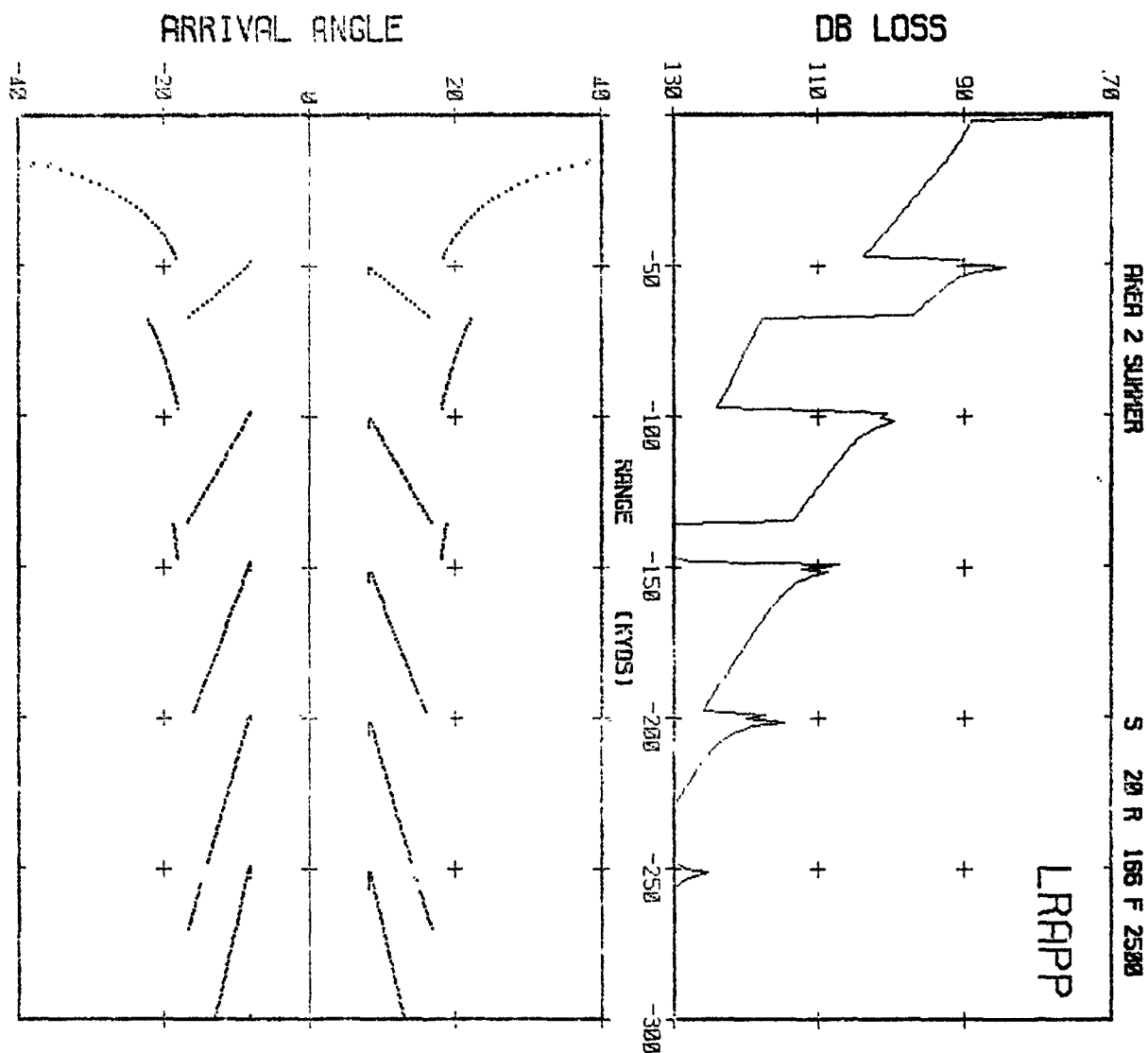


DEPTH IN METERS



NOISE (DB)



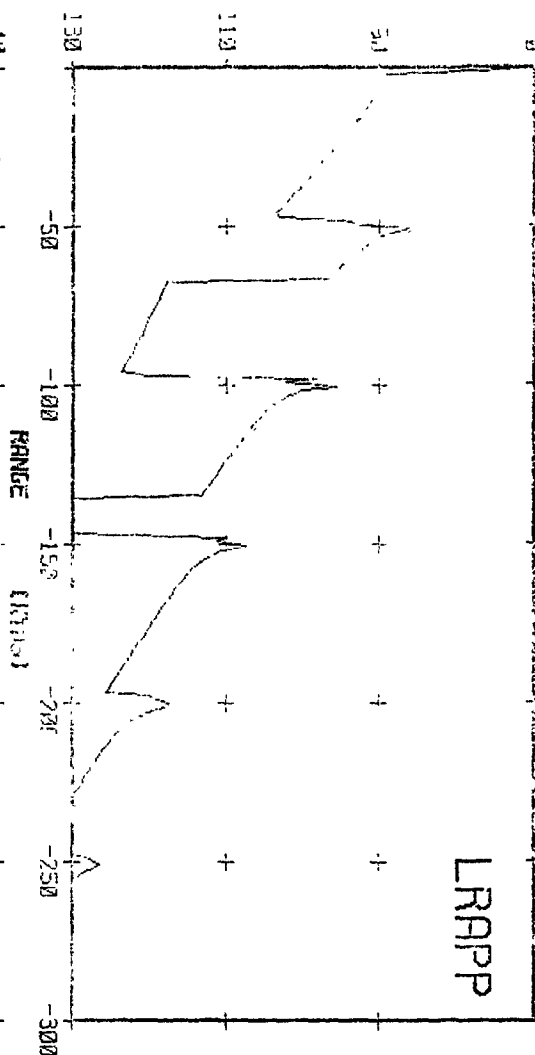


FILE 2 SLIPPER

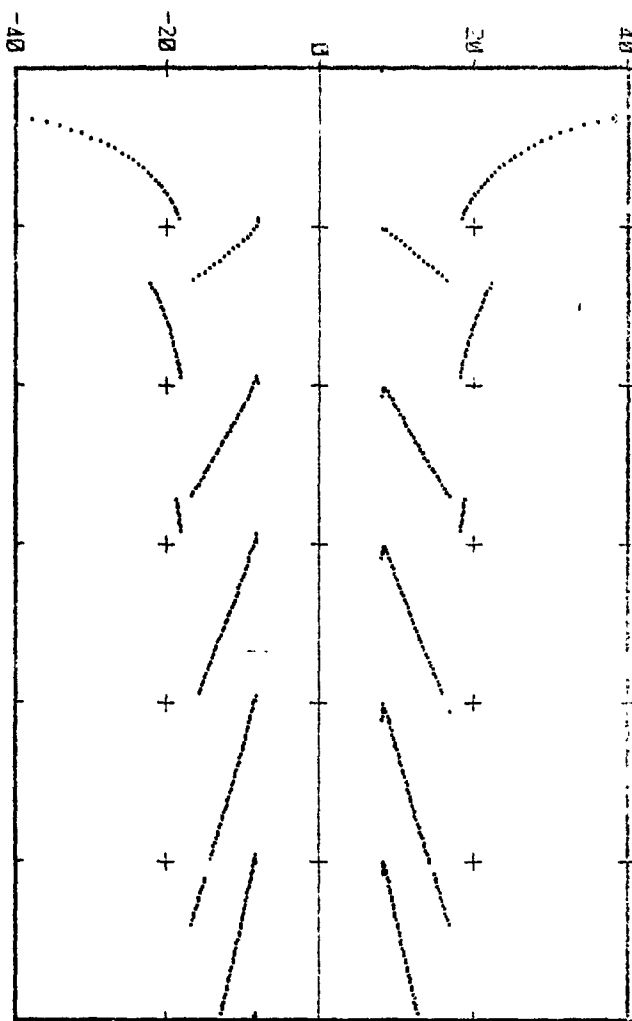
S 50 R 166 F 2500

1450 M/S 1500 1550

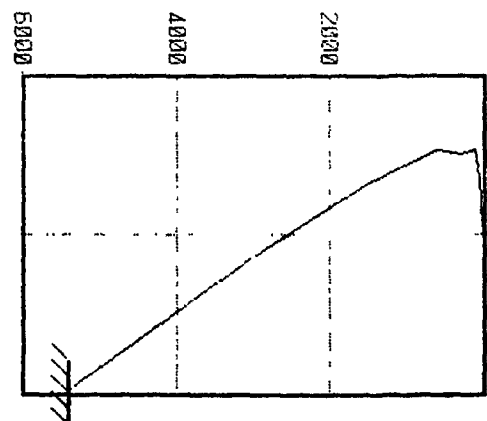
DB LOSS



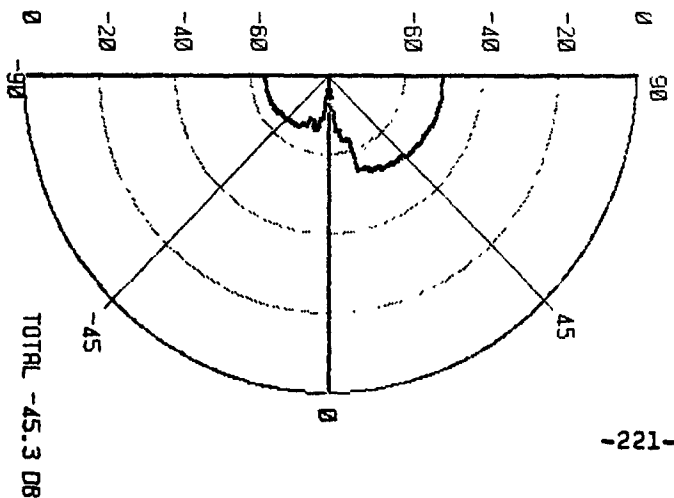
ARRIVAL ANGLE

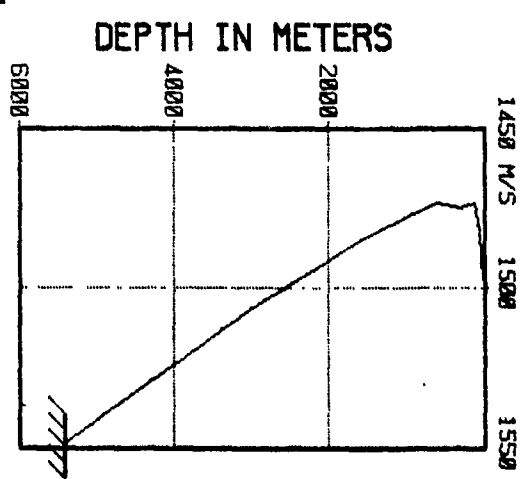
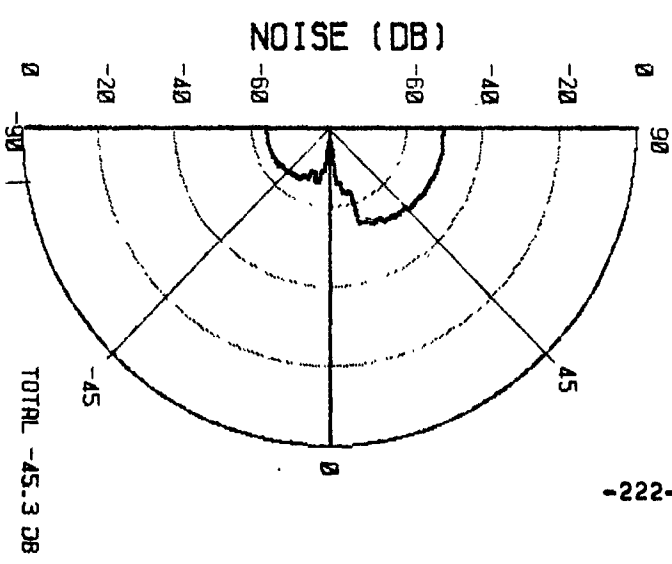
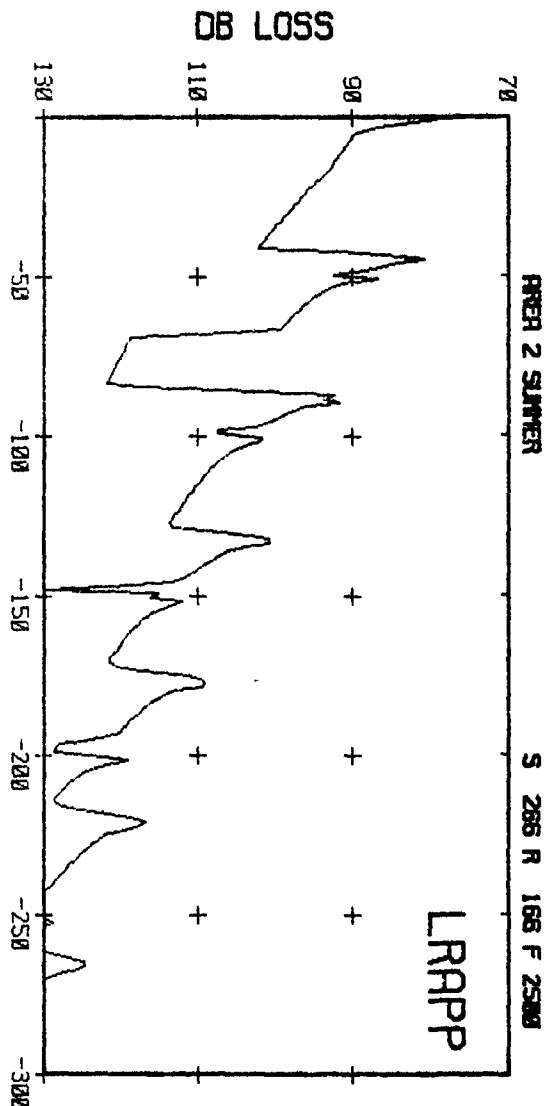
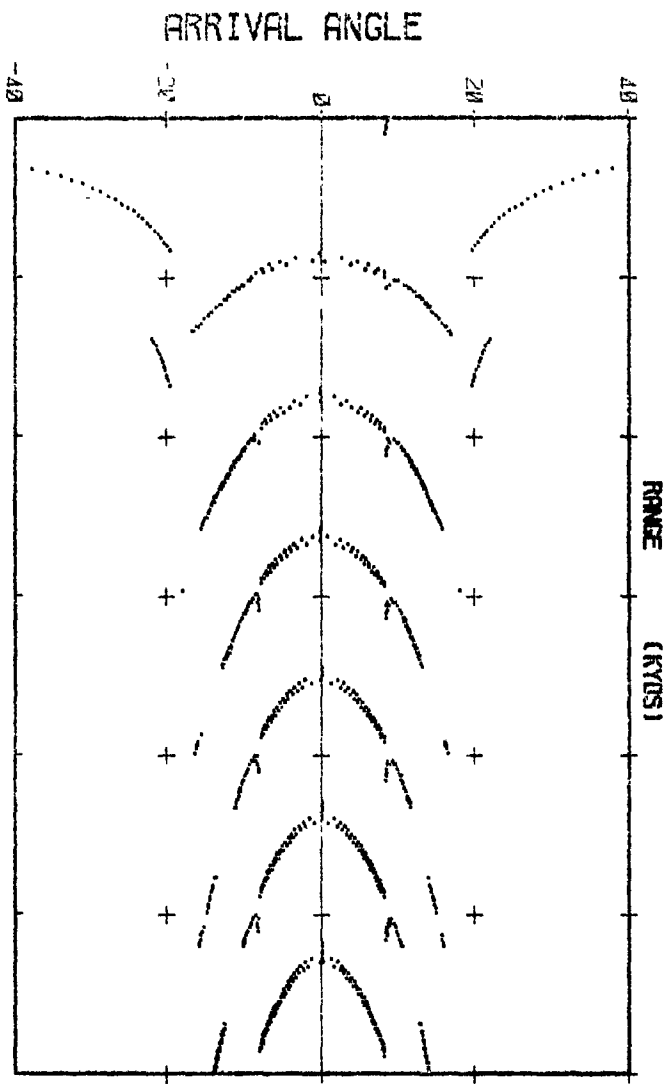


DEPTH IN METERS



NOISE (DB)





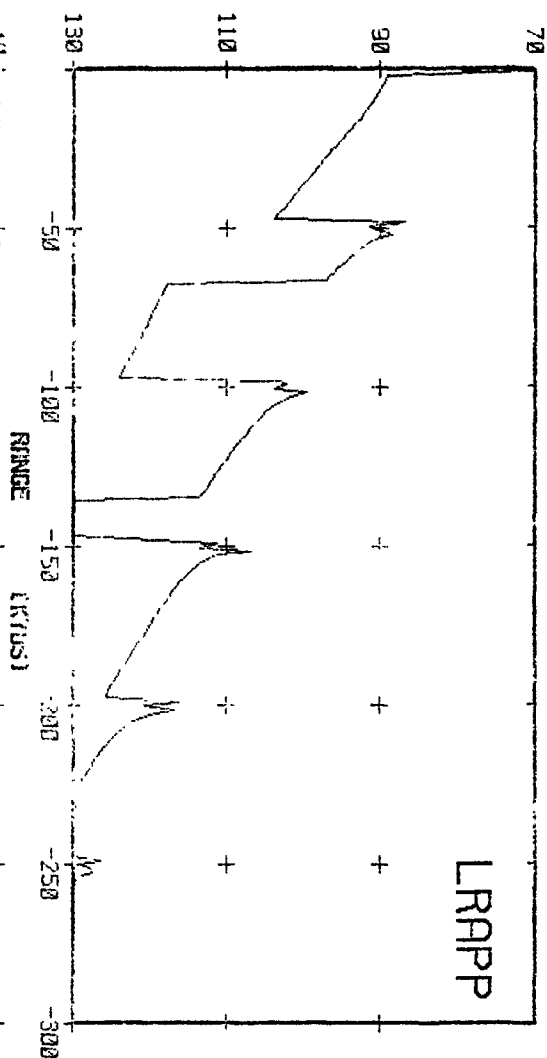
AREA 2 SUMMER S 286 R 168 F 2500

AREA 2 SUMMER

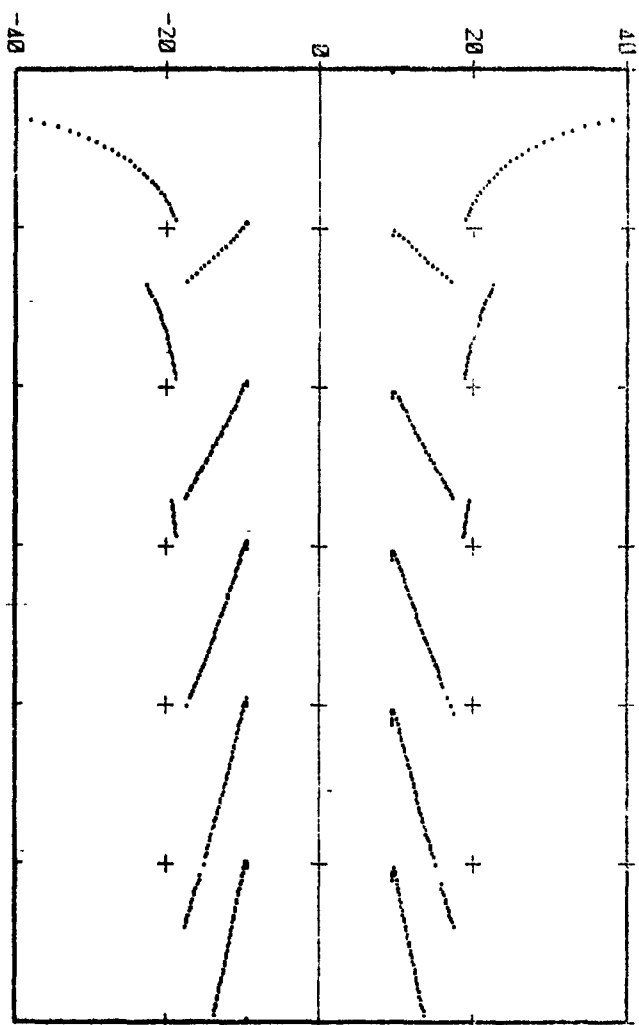
S 20 R 300 F 2500

1450 M/S 1500 1550

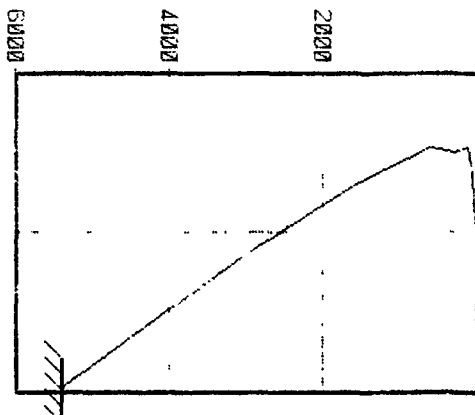
DB LOSS



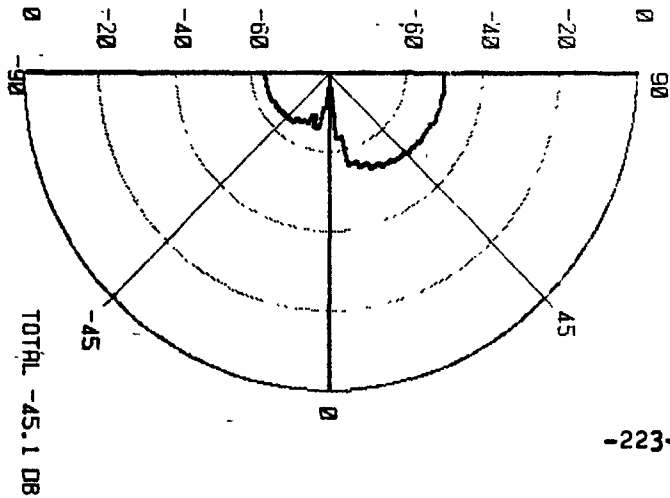
ARRIVAL ANGLE



DEPTH IN METERS



NOISE (DB)



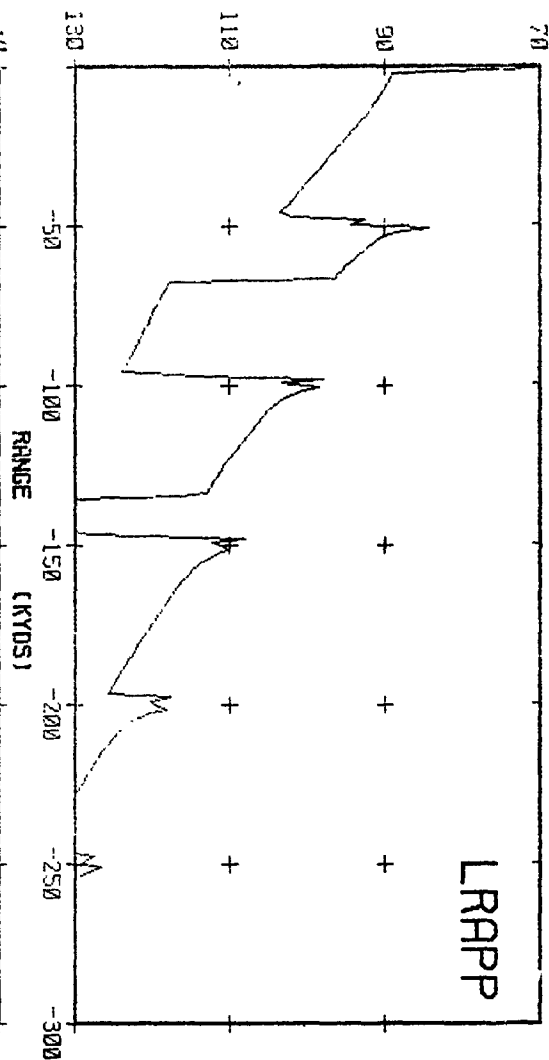


PIPER 2 SUMMER

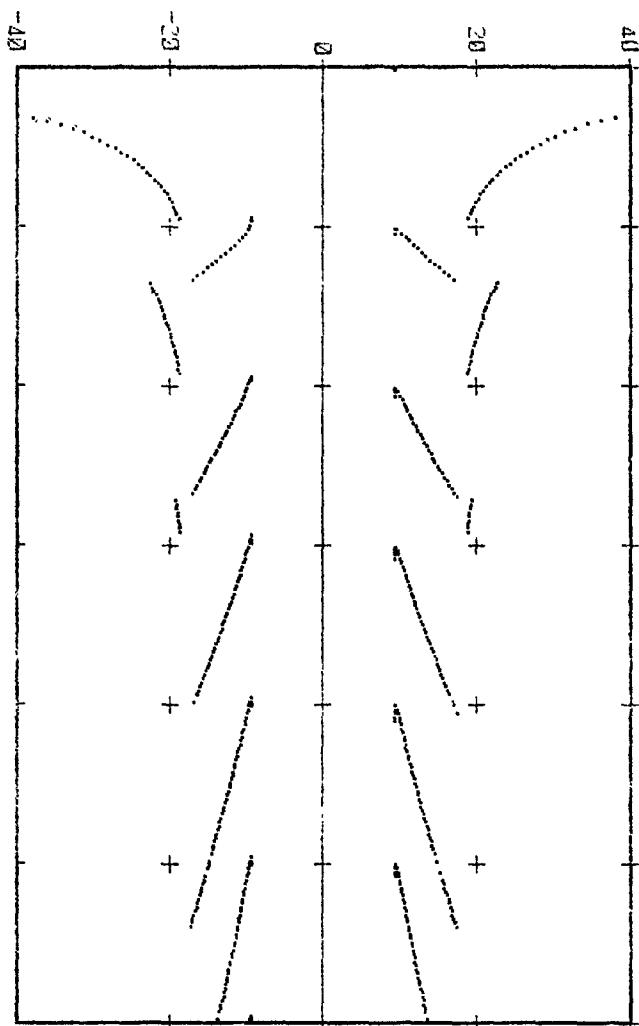
S 50 R 300 F 2500

LRAPP

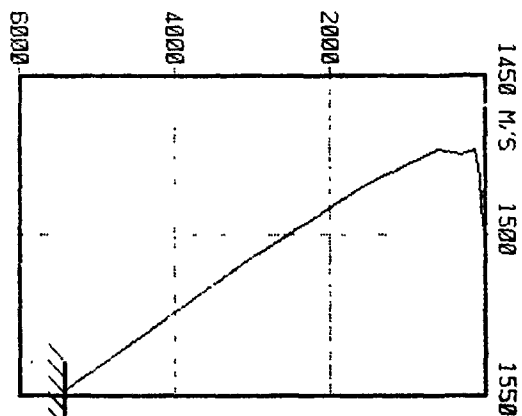
DB LOSS



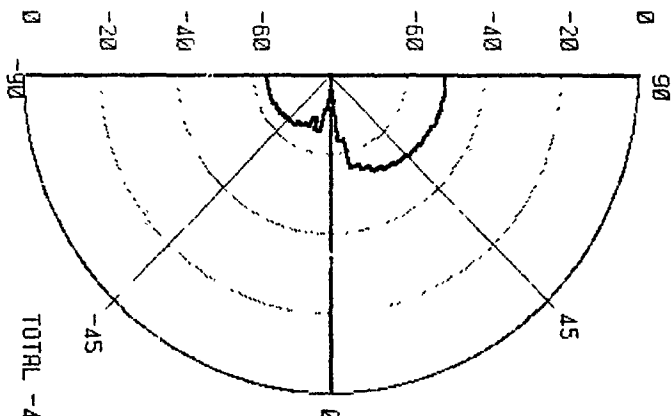
ARRIVAL ANGLE



DEPTH IN METERS



NOISE (DB)

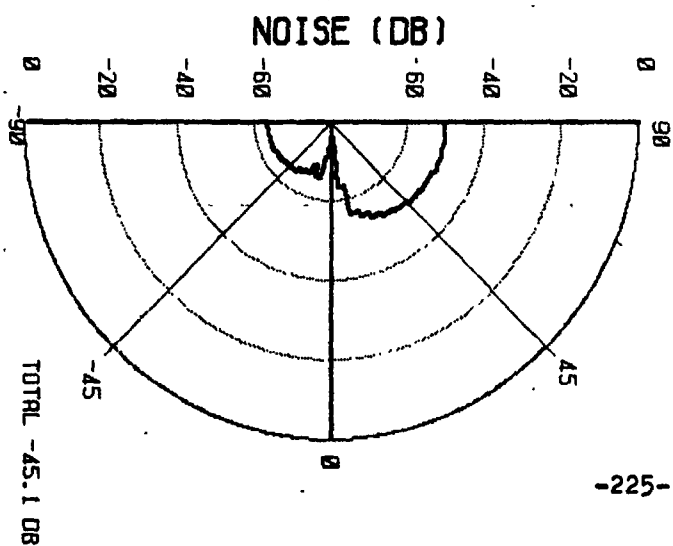
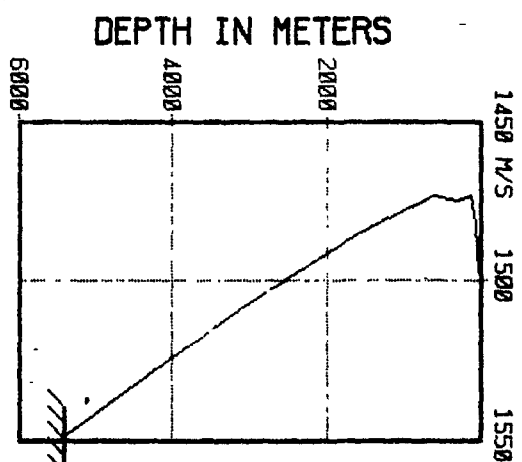
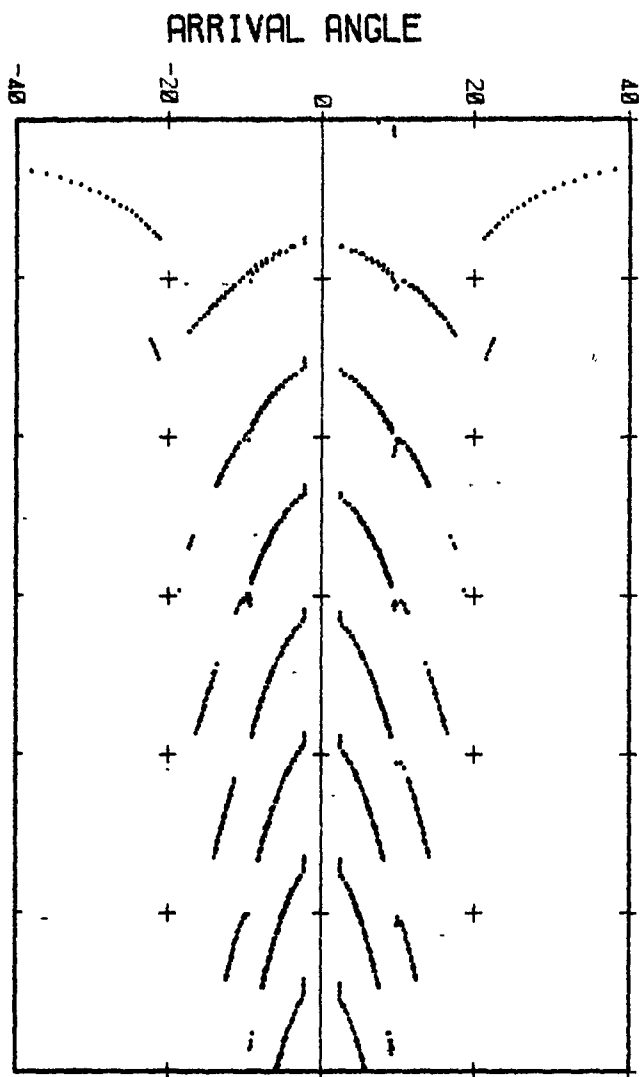
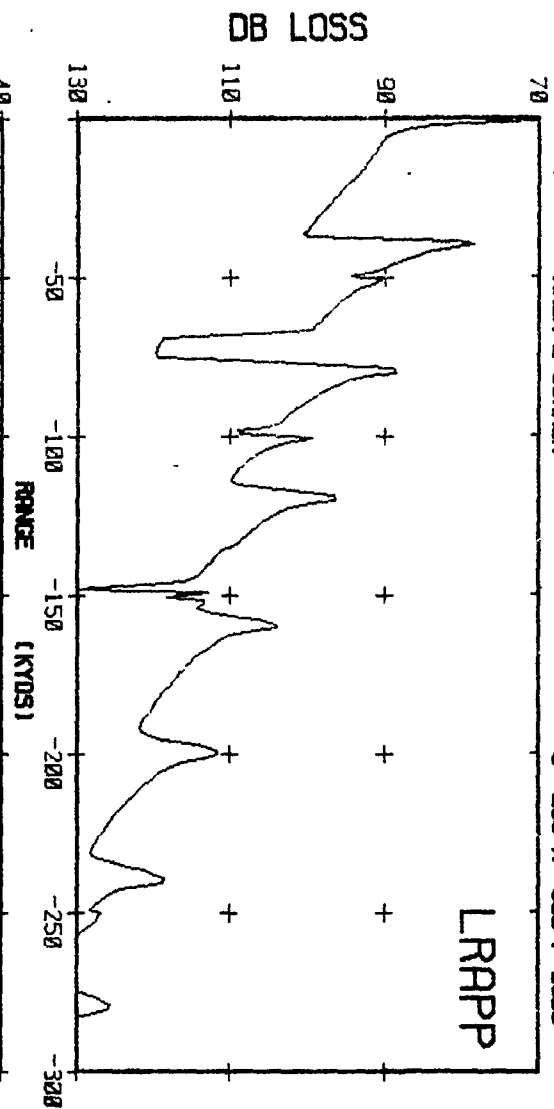


TOTAL -45.1 DB

PRER 2 SUMMER

S 286 R 300 F 2500

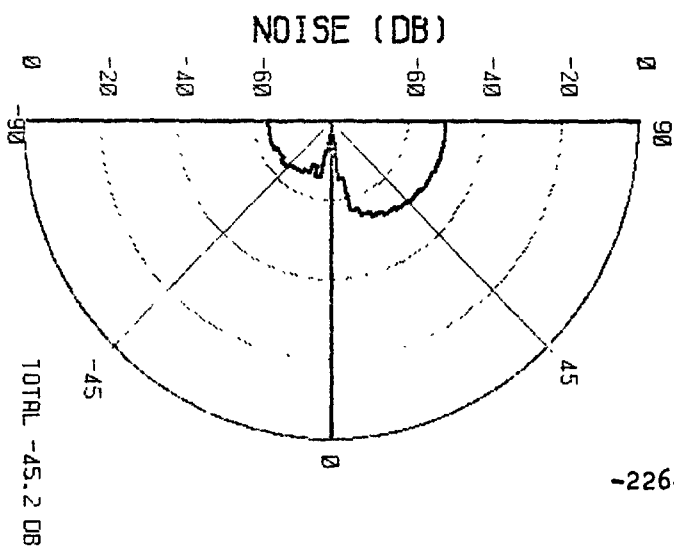
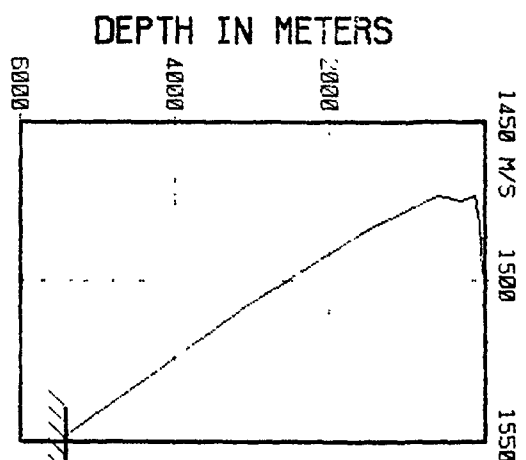
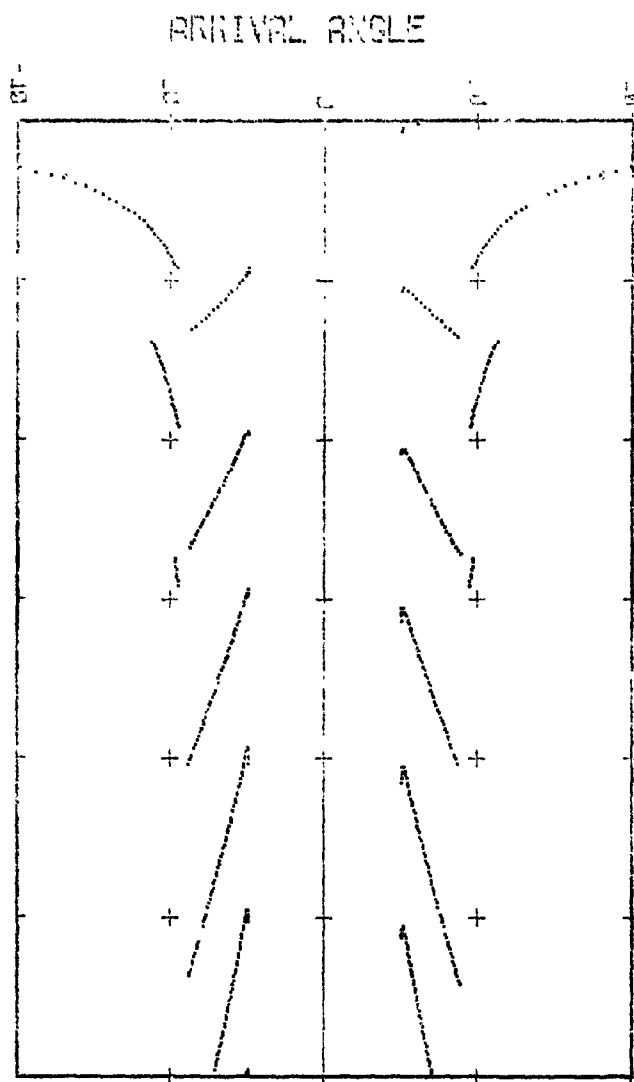
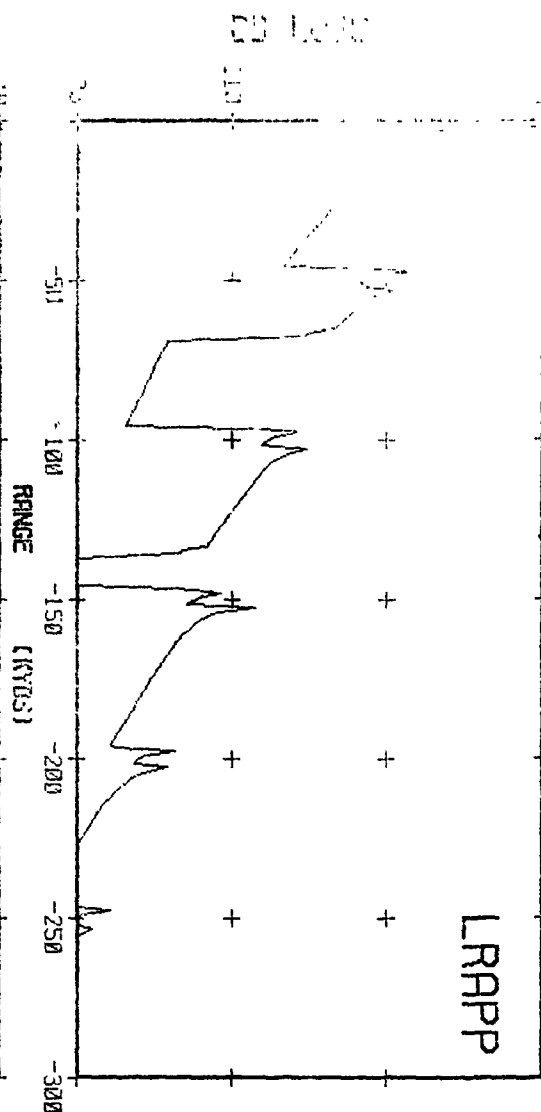
LRAPP



CTN 2 SWIR

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LRAPP

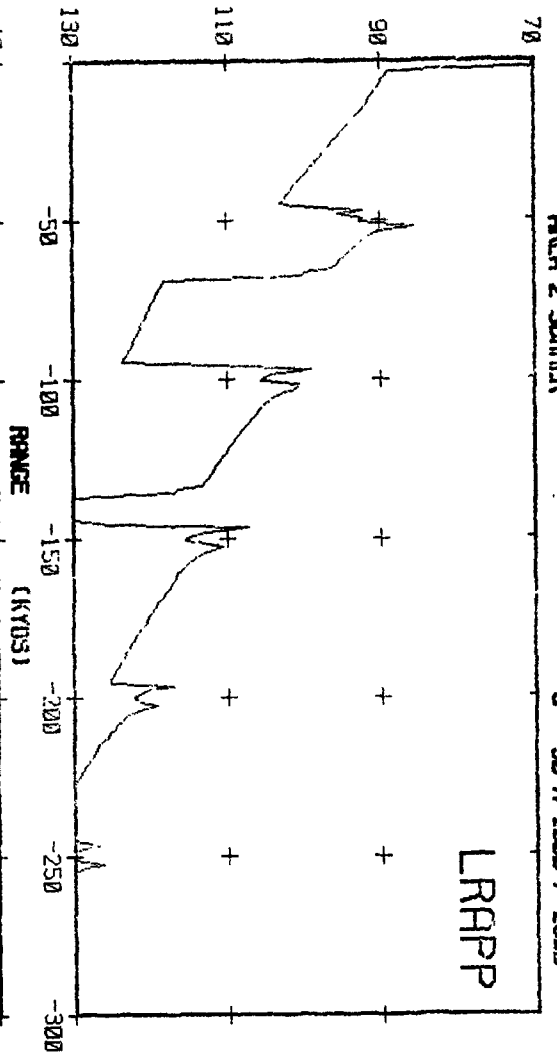


AREA 2 SUMMER

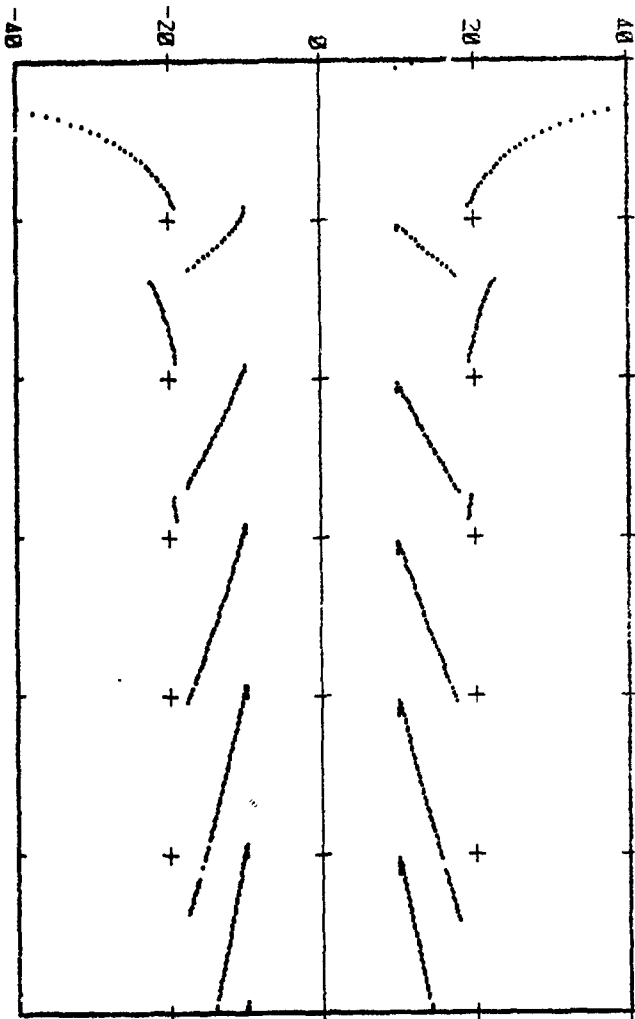
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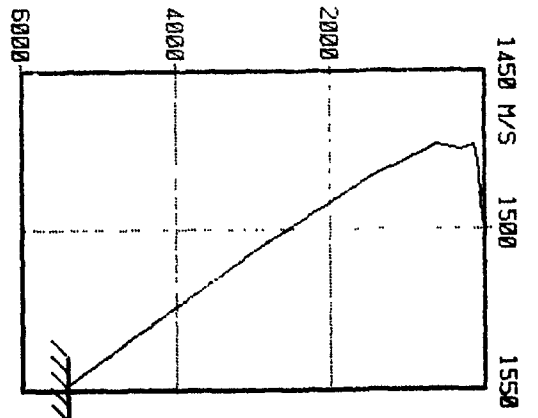
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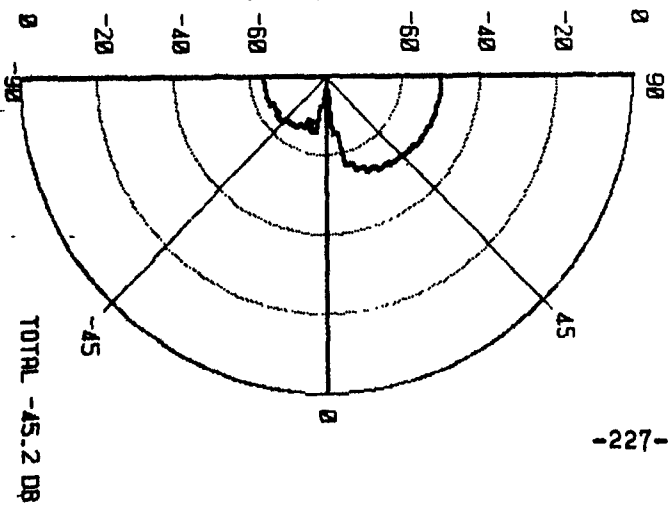
ARRIVAL ANGLE



DEPTH IN METERS



NOISE (DB)

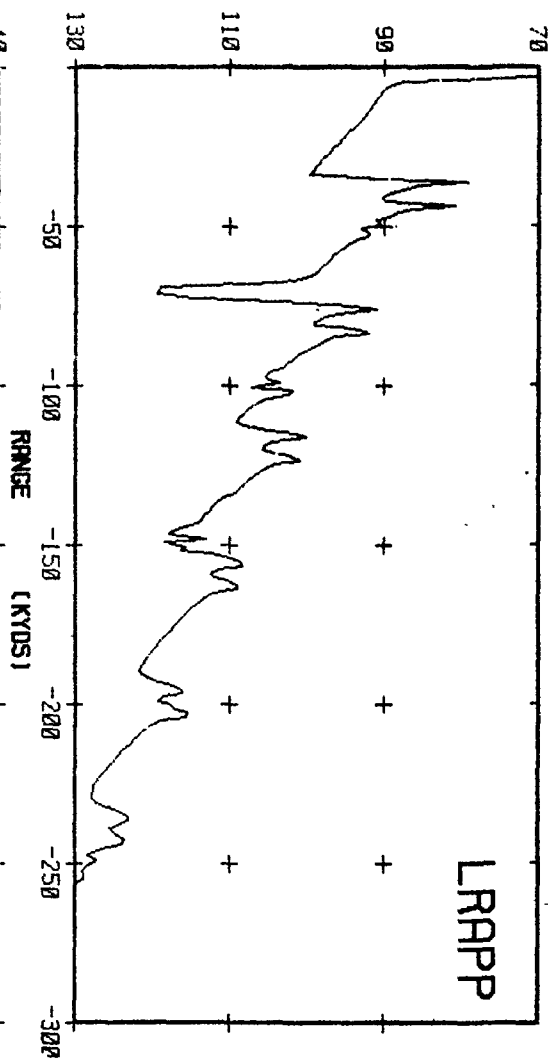


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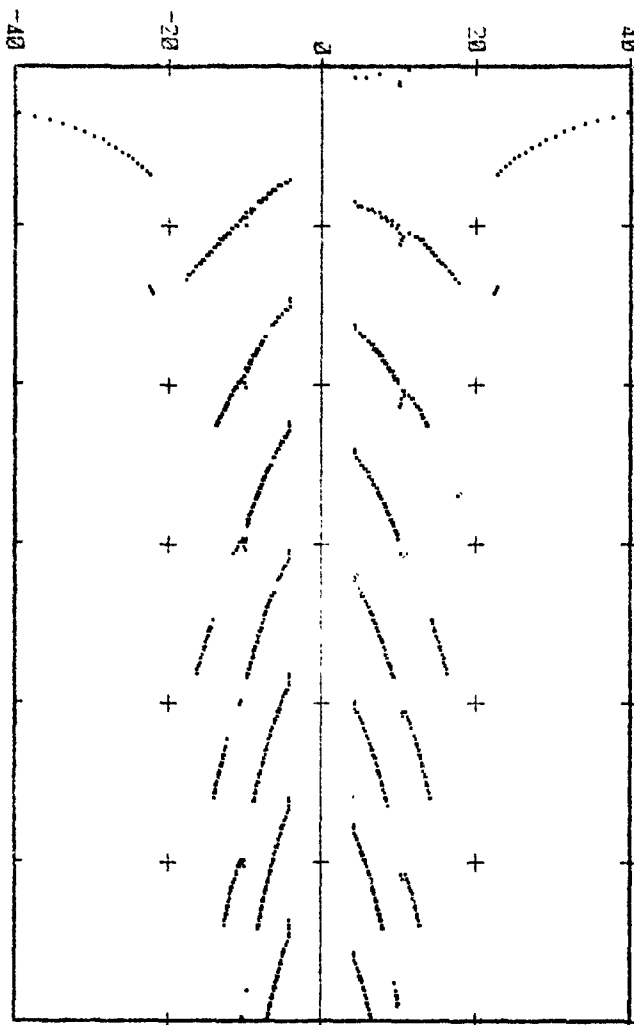
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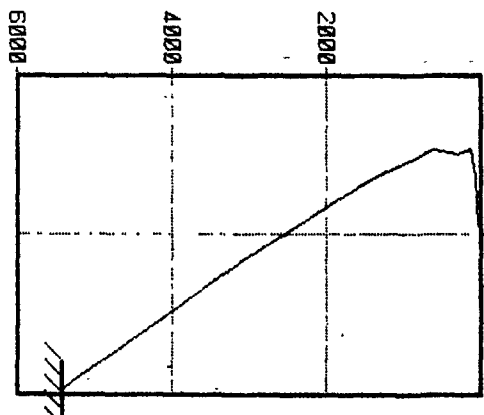
DB LOSS



ARRIVAL ANGLE



DEPTH IN METERS



NOISE (DB)

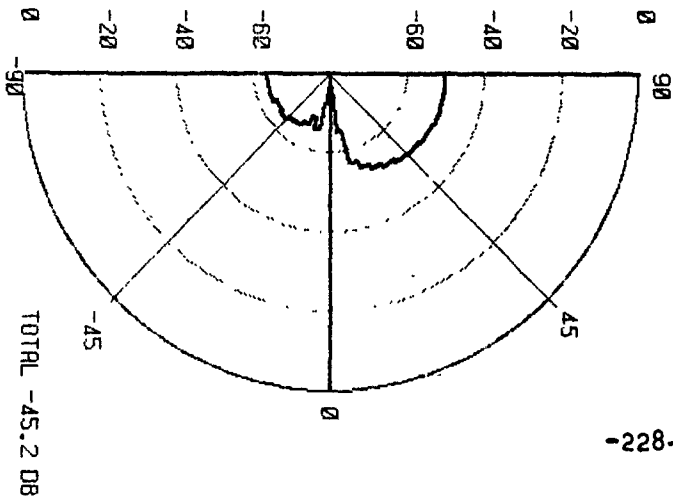
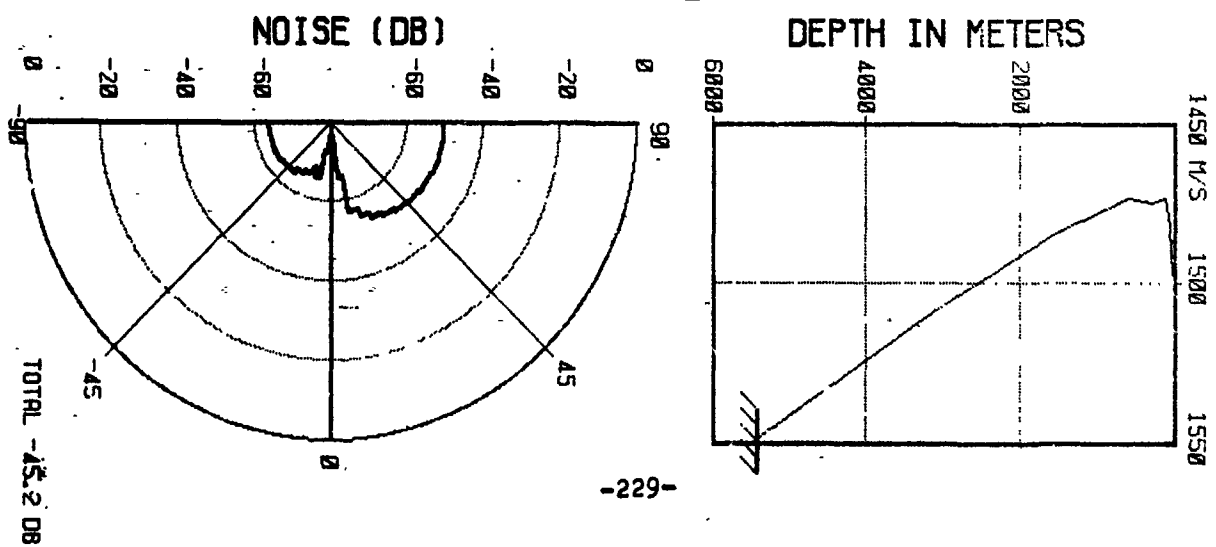
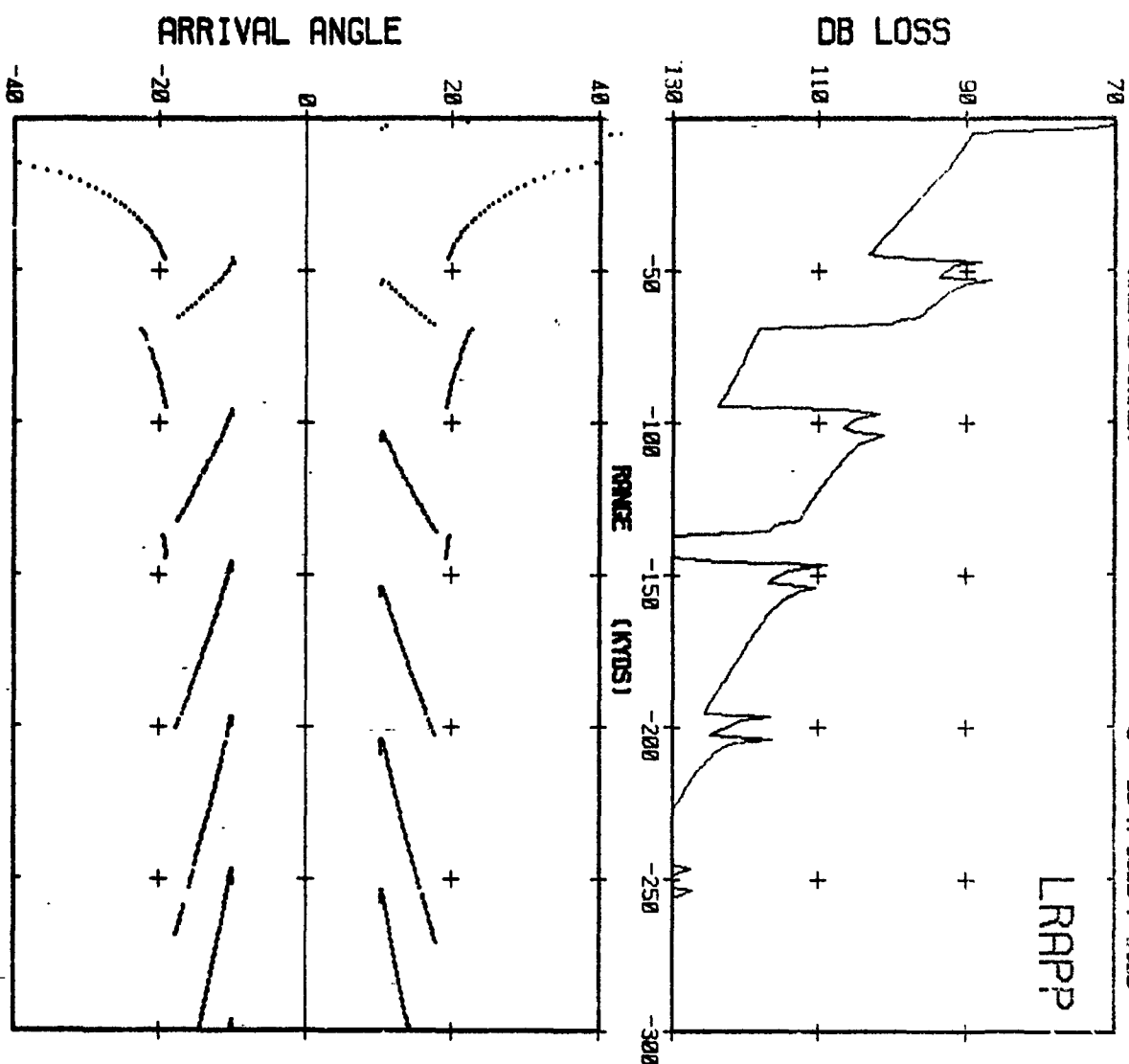


FIGURE 2 SLUTTER

S 20 R 15 L F 25 M

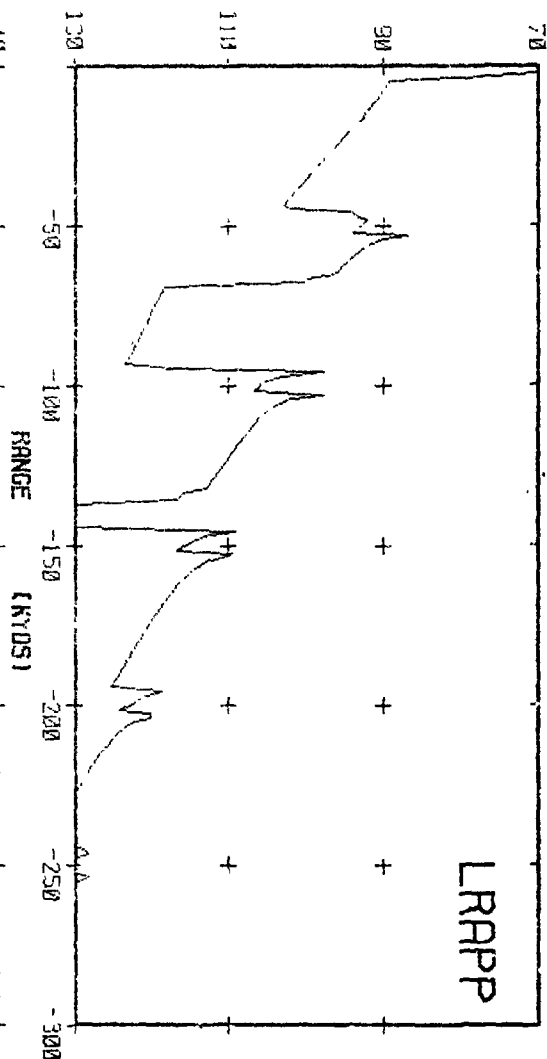


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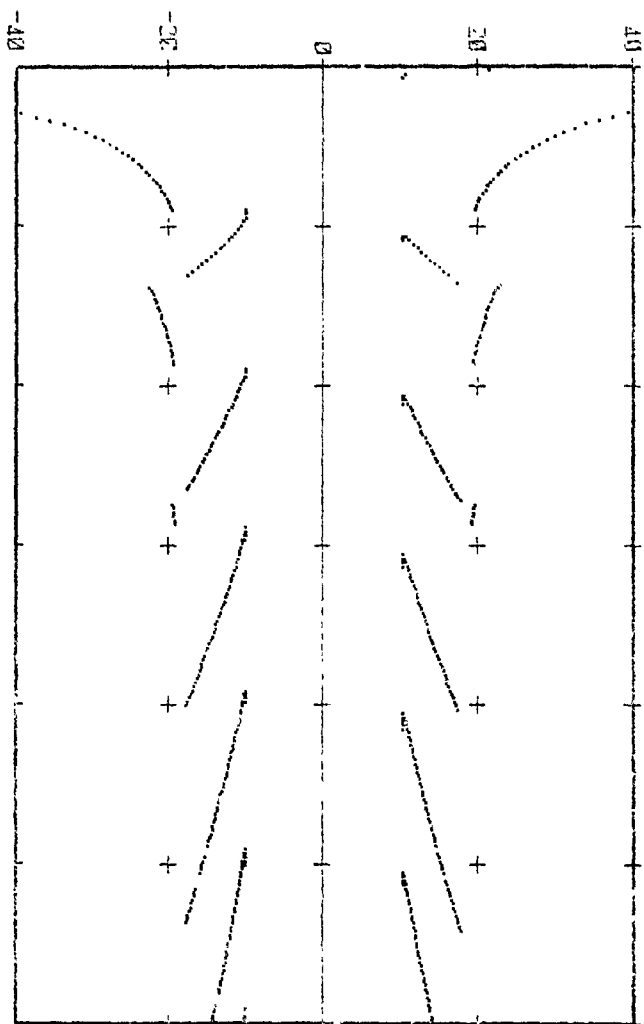
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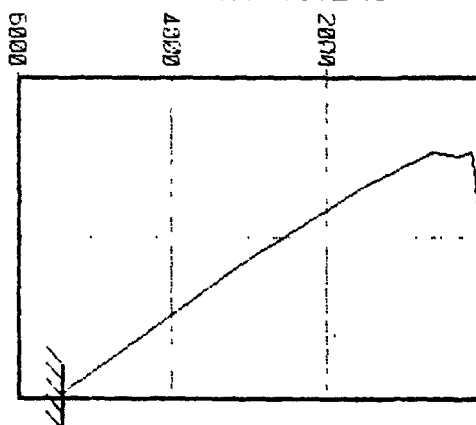
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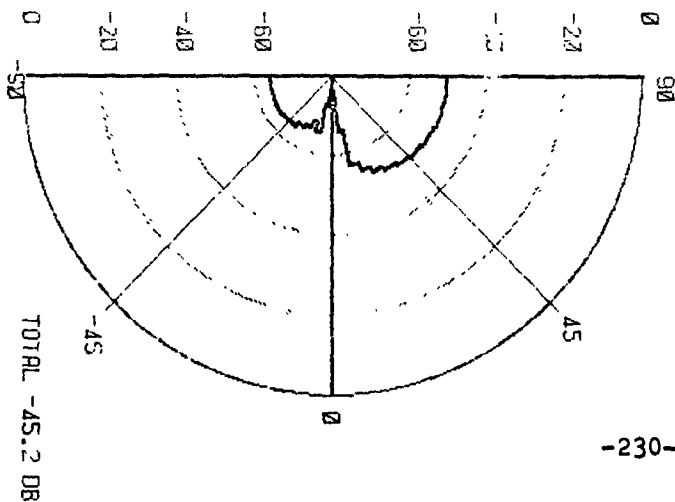
ARRIVAL ANGLE



DEPTH IN METERS



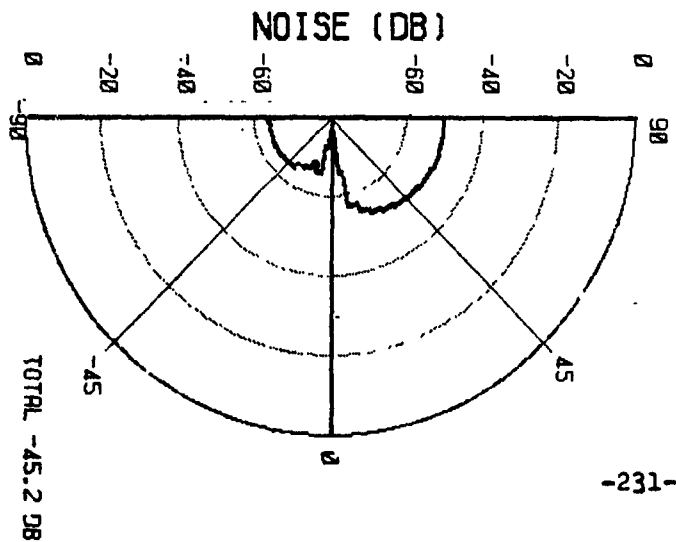
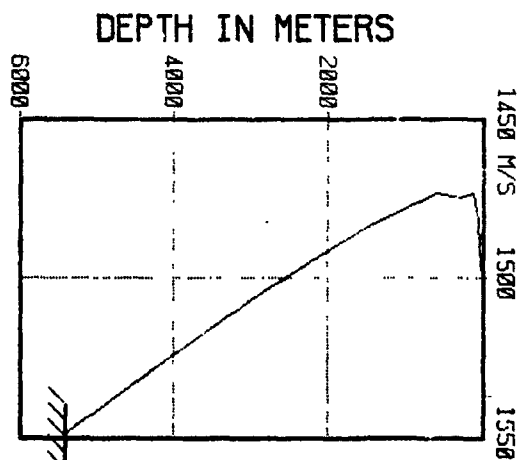
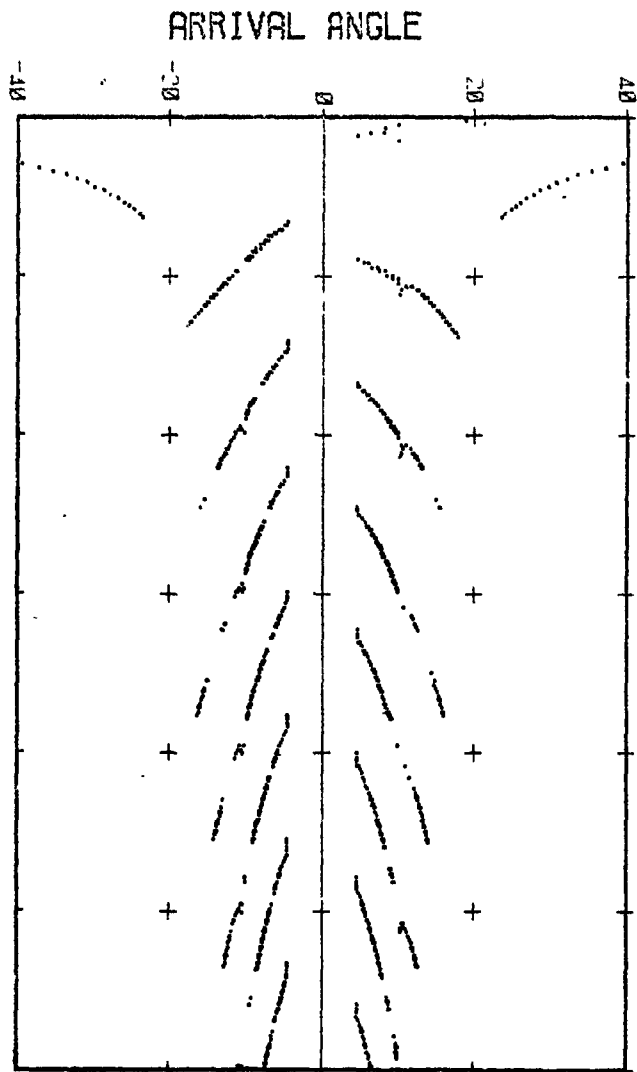
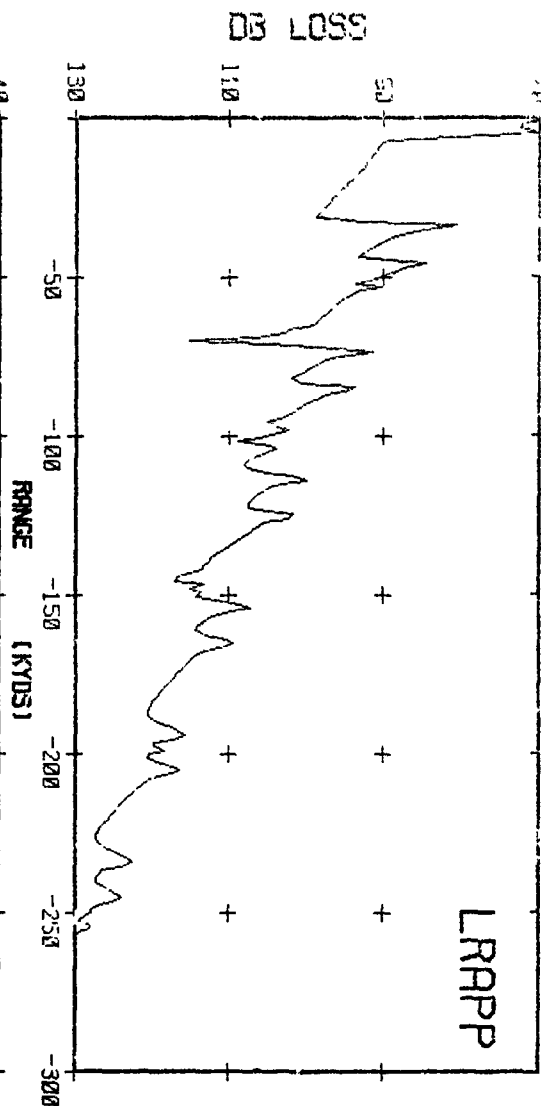
NOISE (DB)



FILTER 2 SUMMER

S 266 R 1500 F 2510

LRAPP



-231-

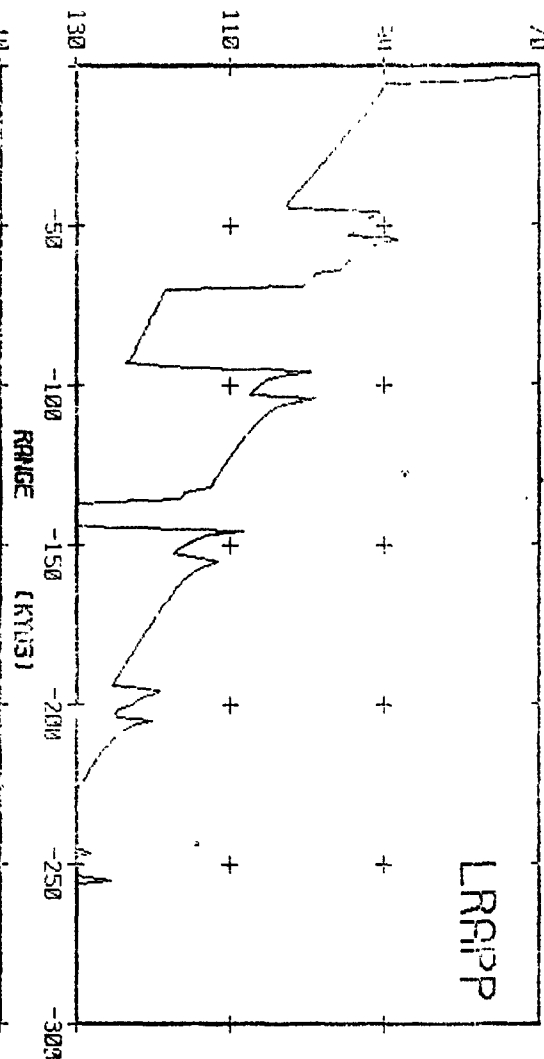


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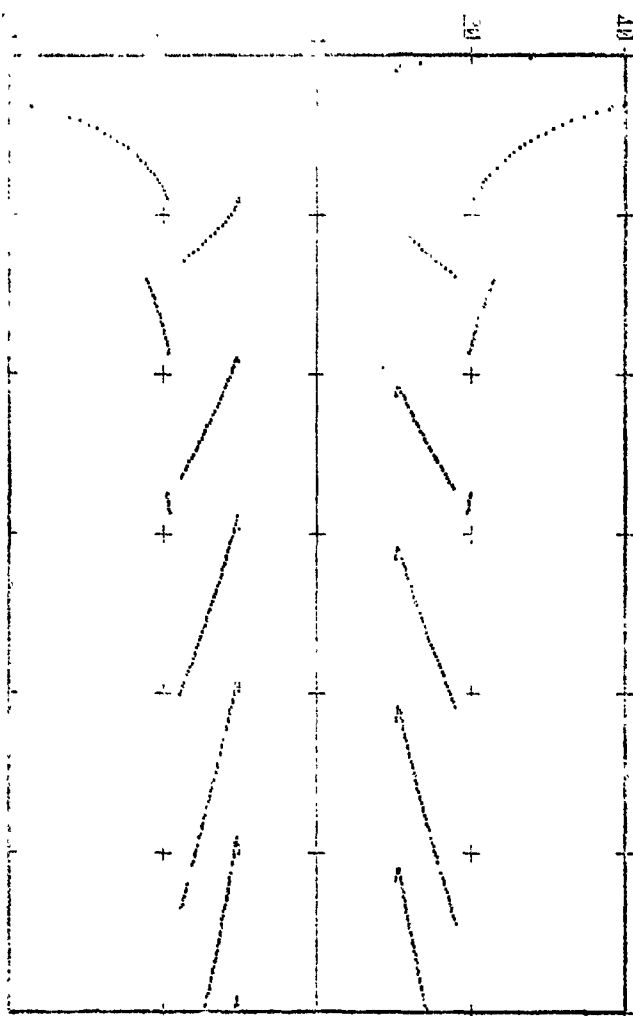
S 20 K 1963 F 2580

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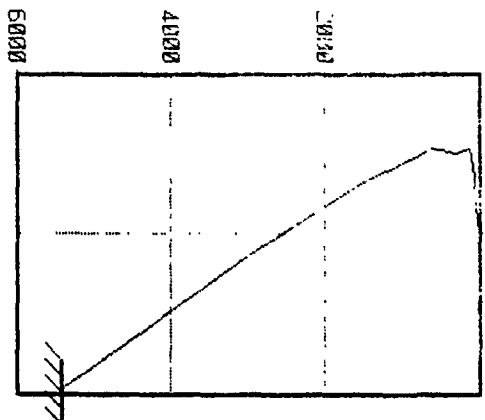
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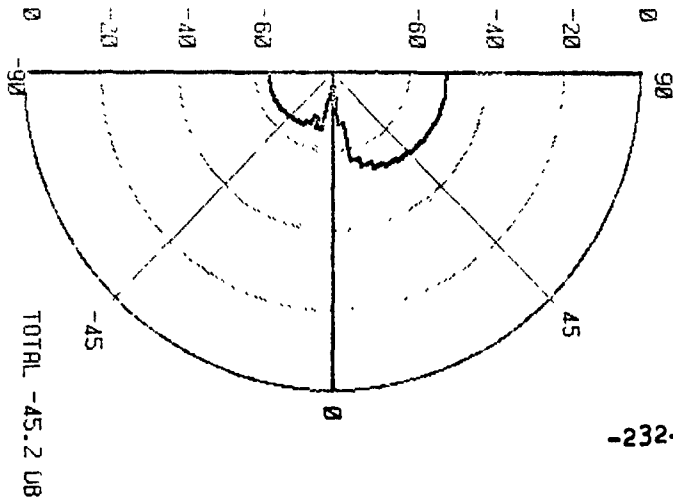
PRINCIPAL ANGLE



DEPTH IN METERS



NOISE (DB)



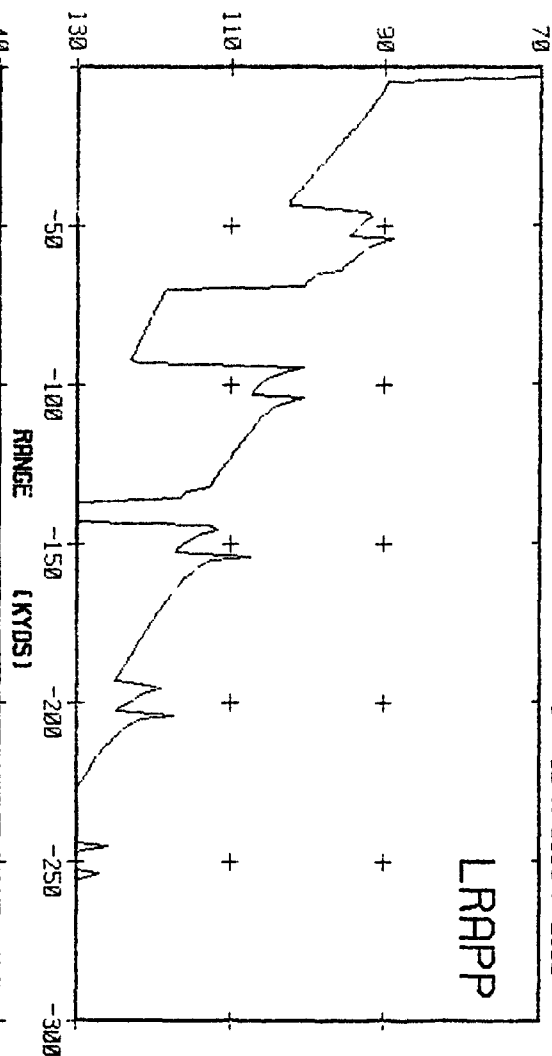
AREA 2 SUMMER

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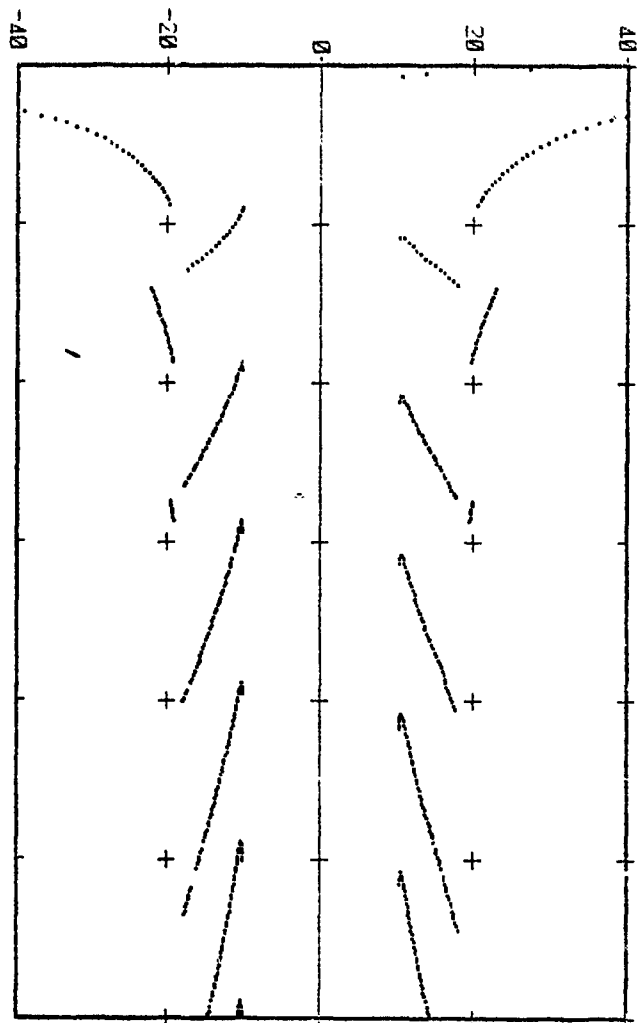
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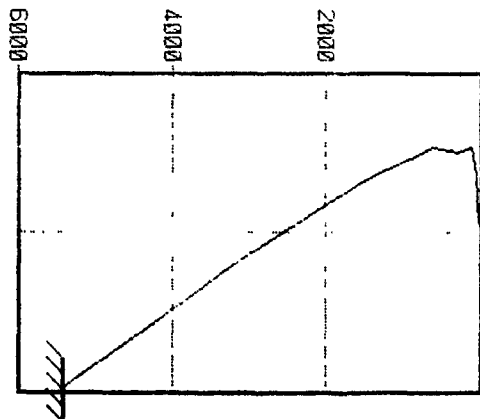
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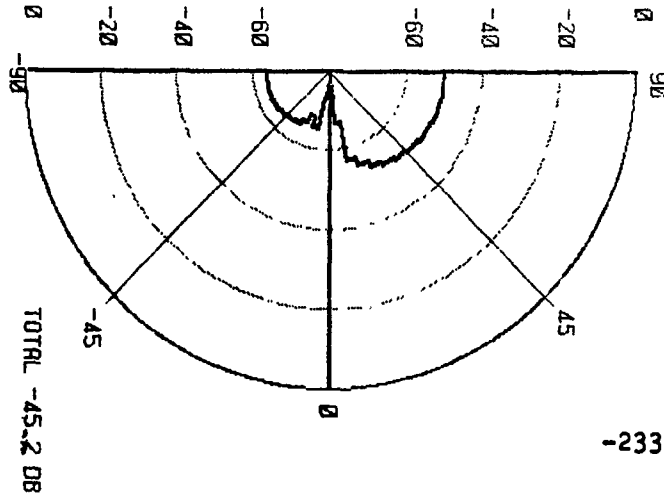
ARRIVAL ANGLE

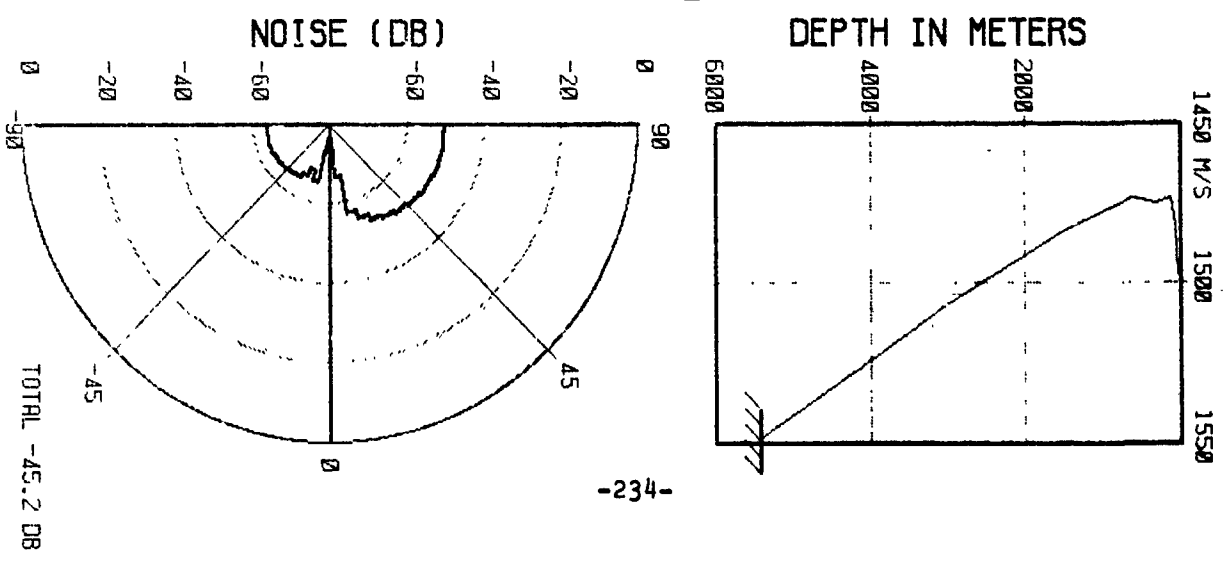
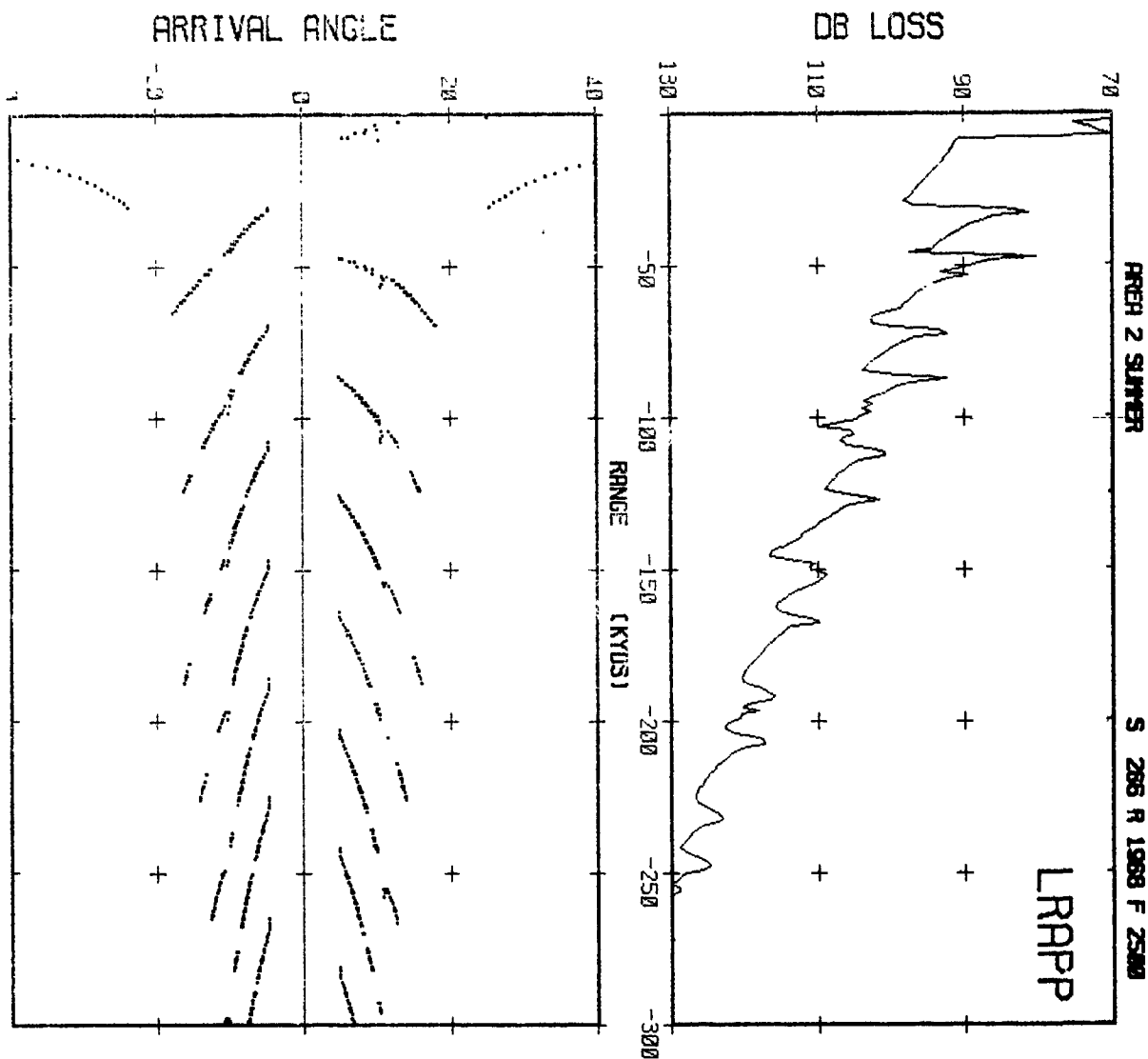


DEPTH IN METERS



NOISE (DB)



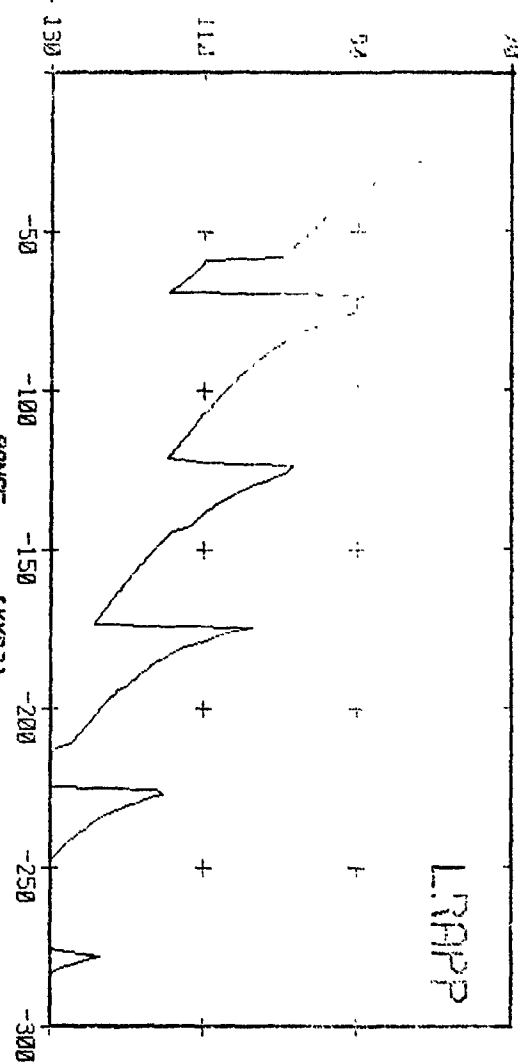


STATION 2 BURDEN

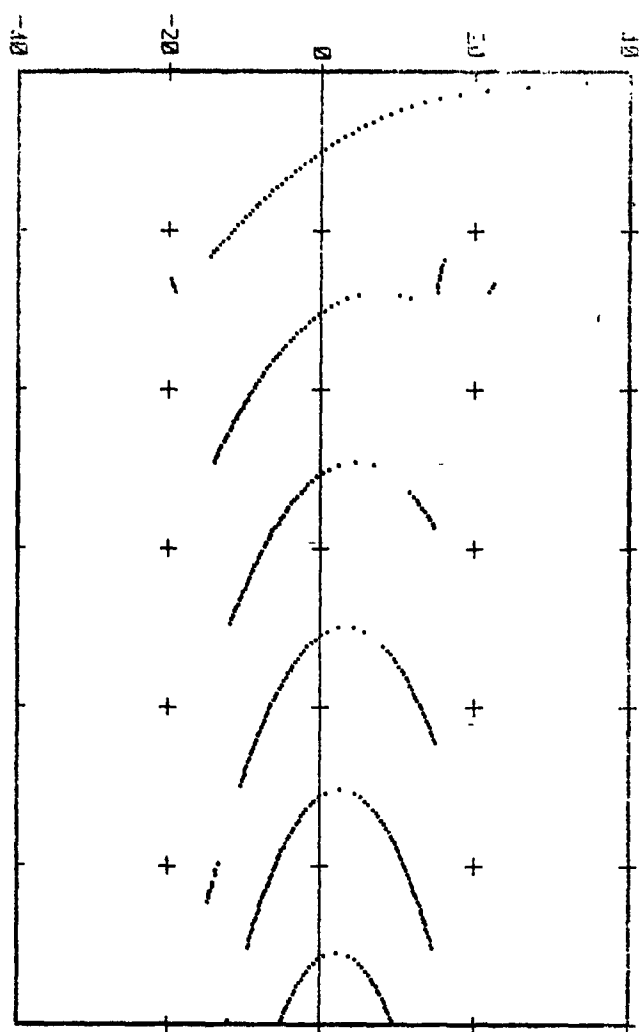
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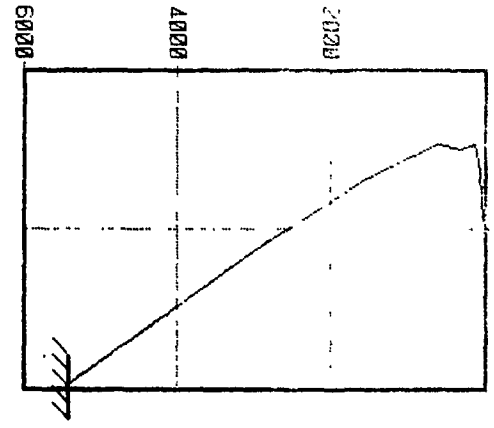
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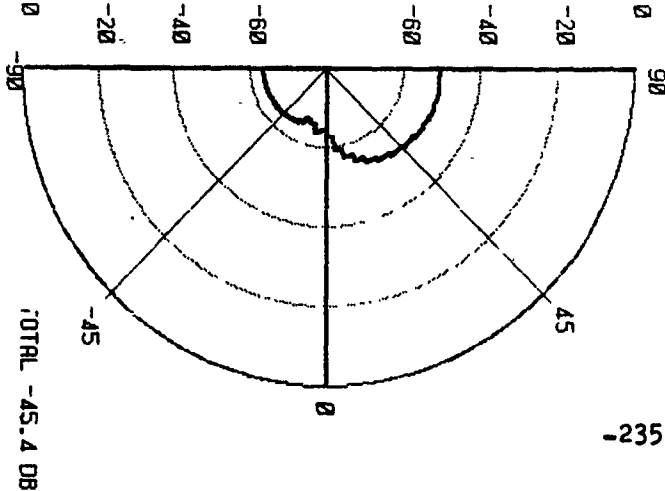
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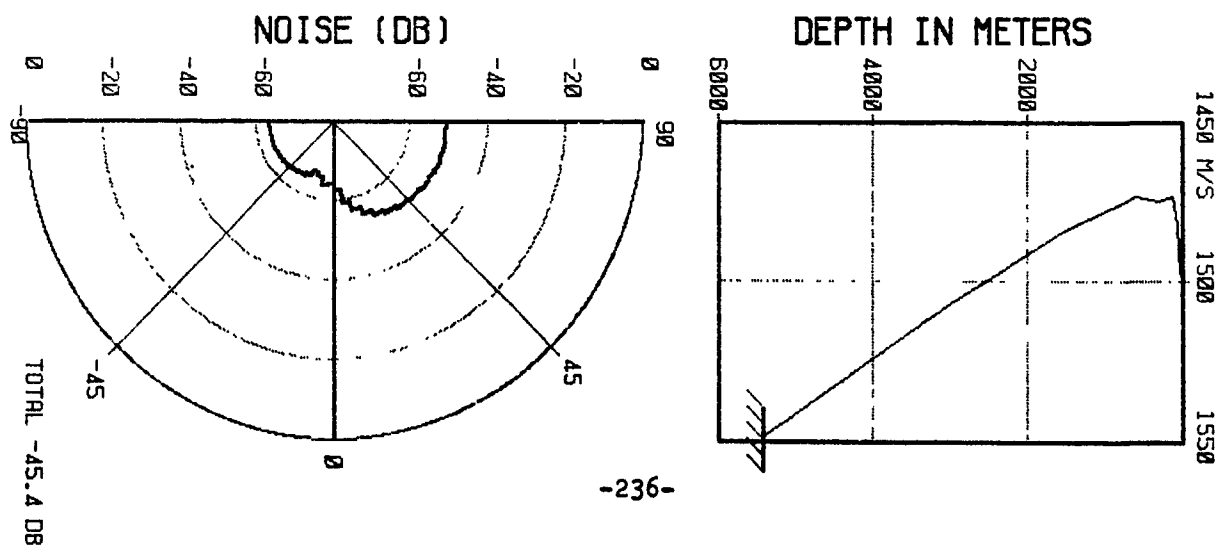
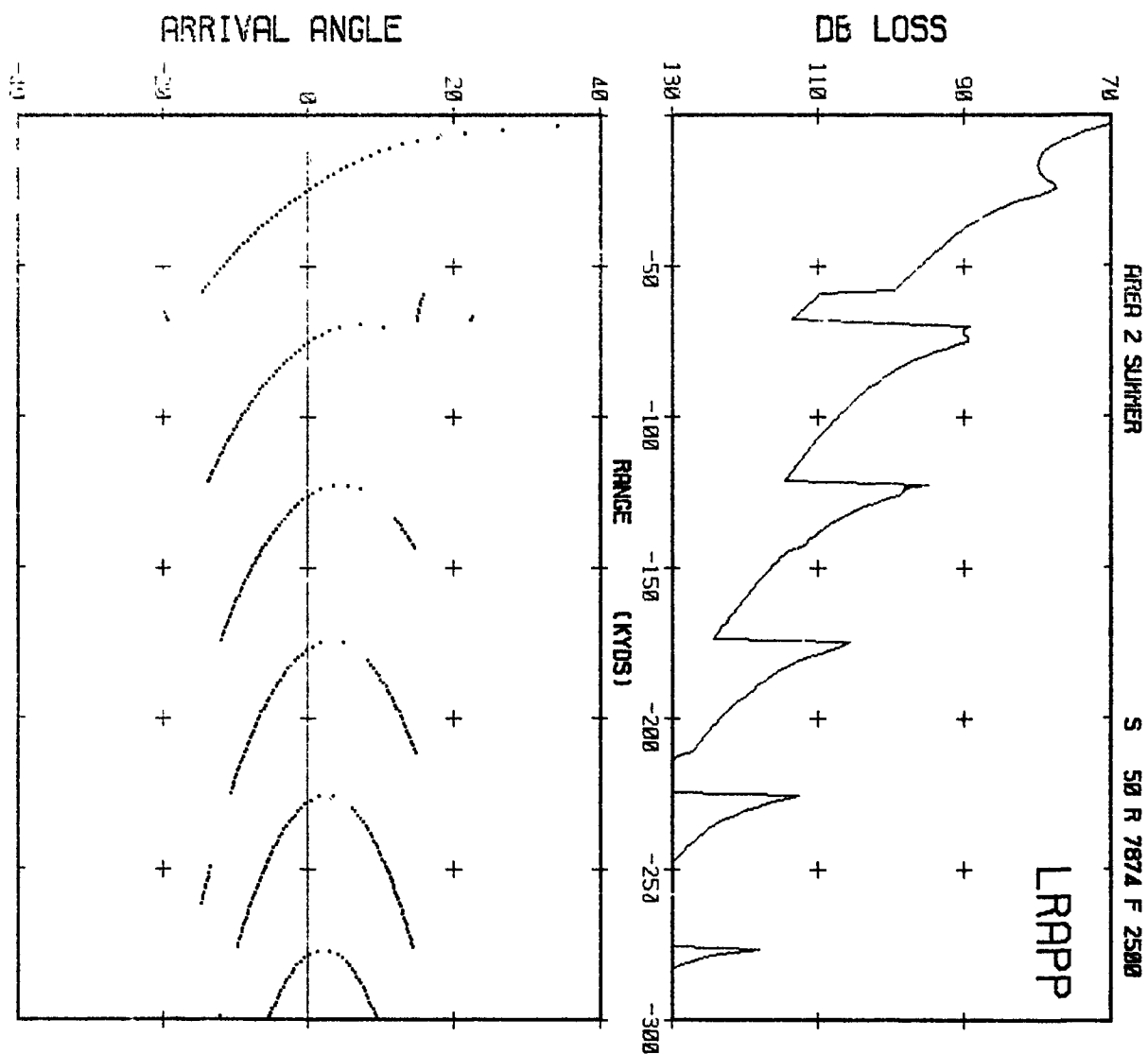


DEPTH IN METERS



NOISE (DB)





AREA 2 SUMMER

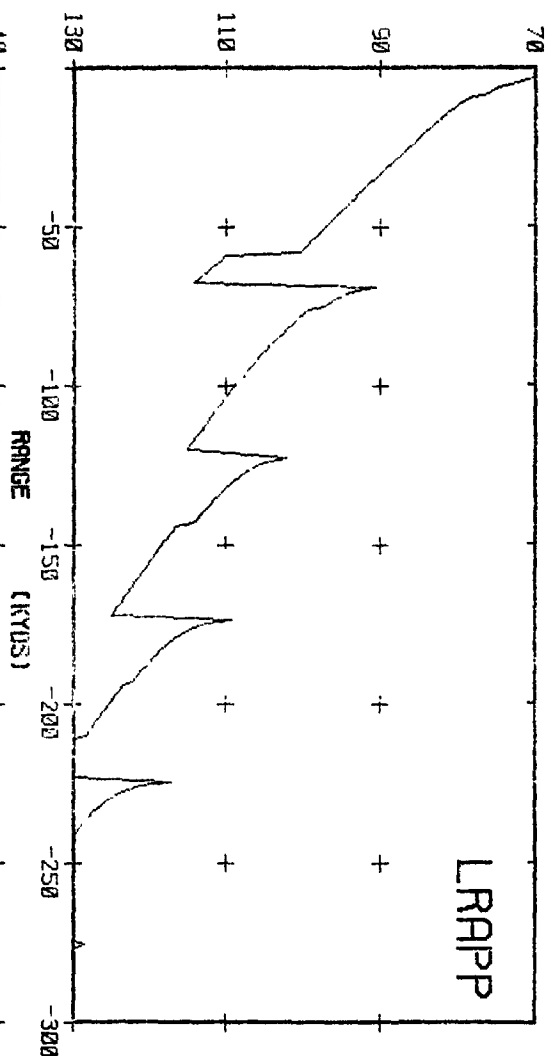
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1450 M/S

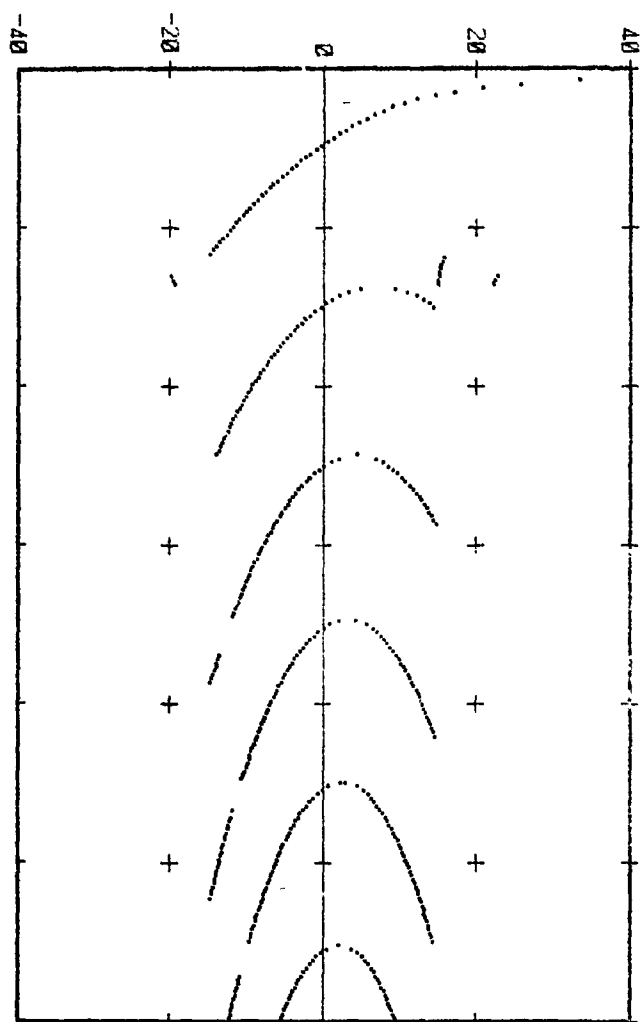
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1550

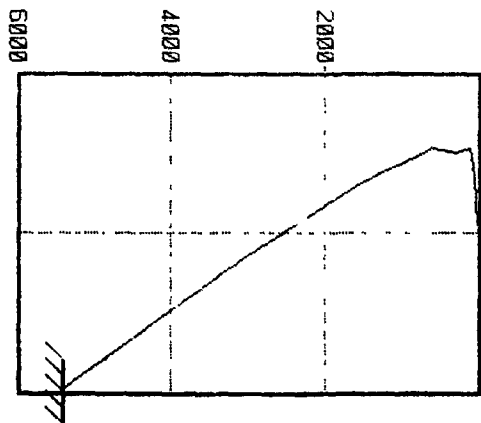
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ARRIVAL ANGLE



DEPTH IN METERS



NOISE (DB)

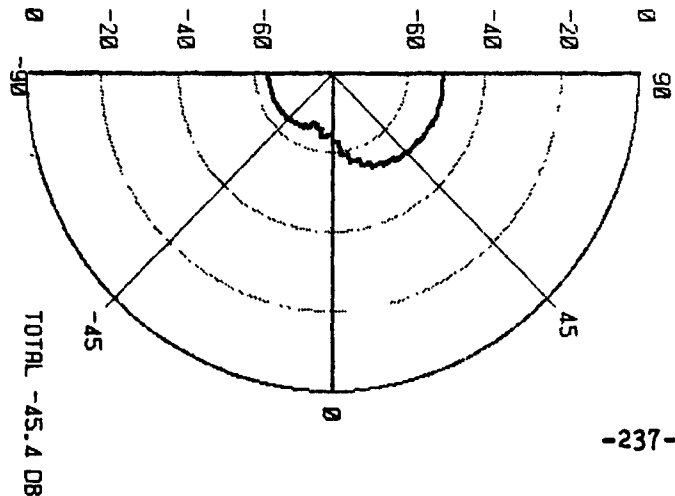
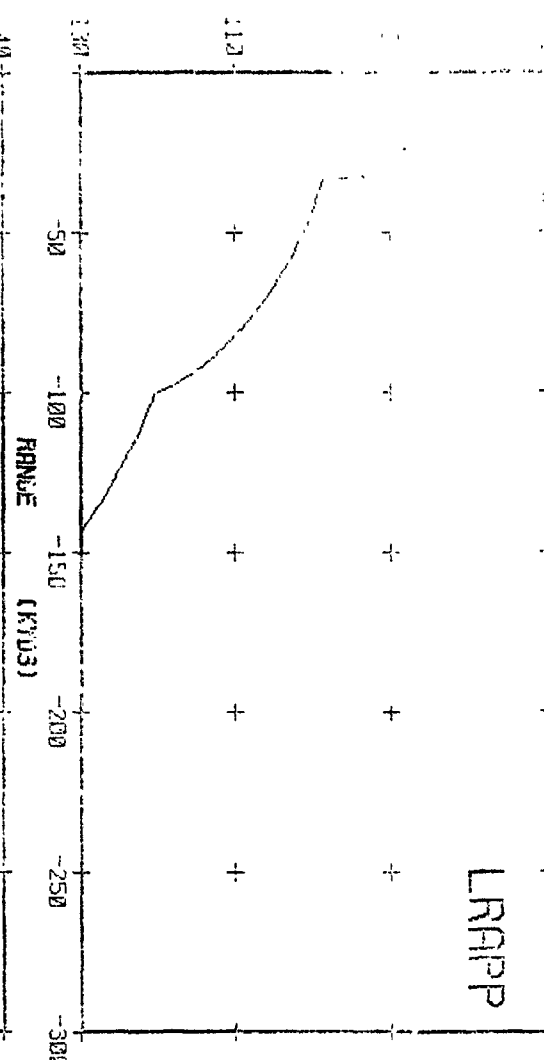


Figure 2. Surface

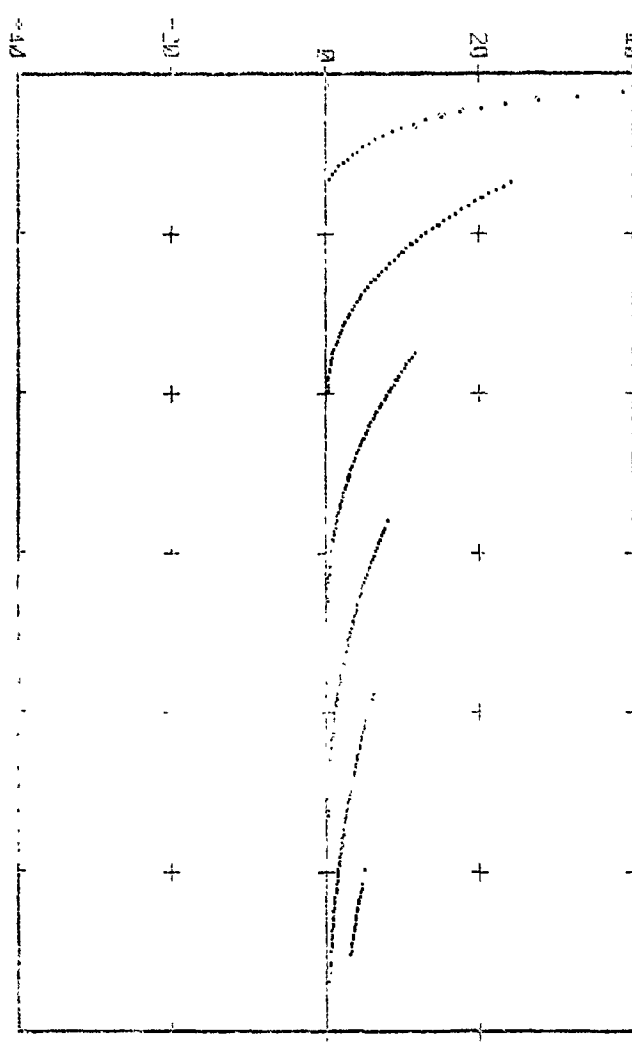
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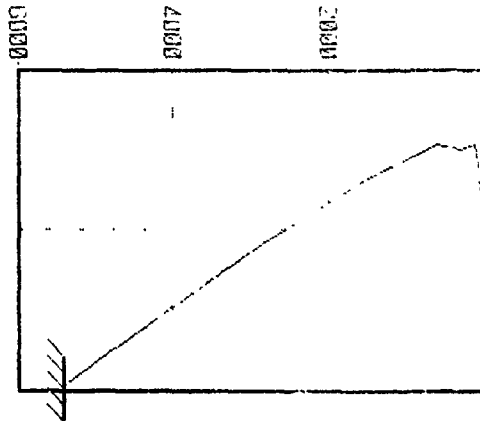
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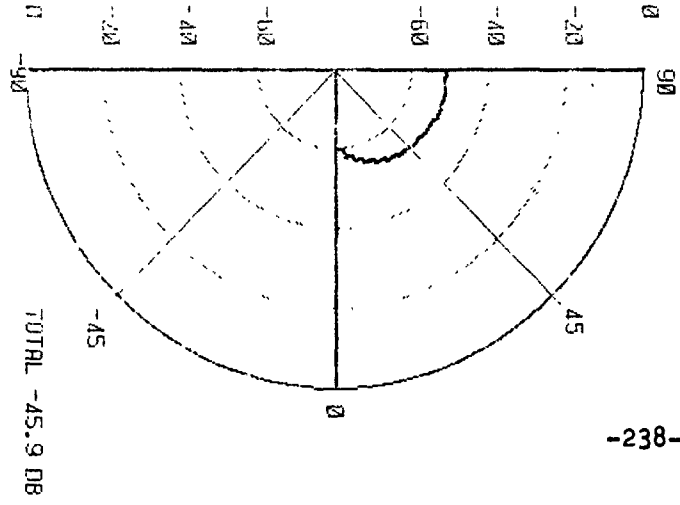
ARRIVAL ANGLE



DEPTH IN METERS



NOISE (DB)

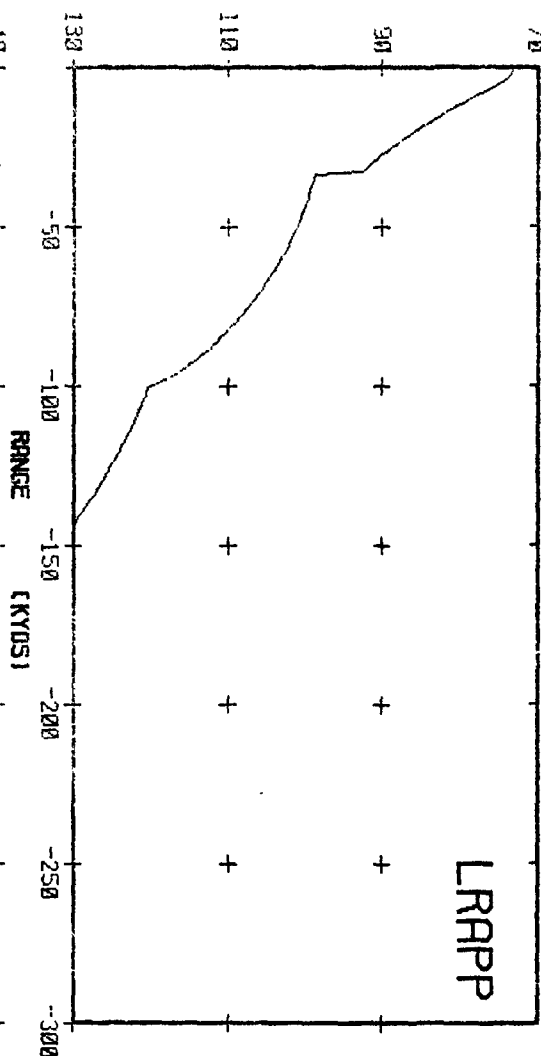


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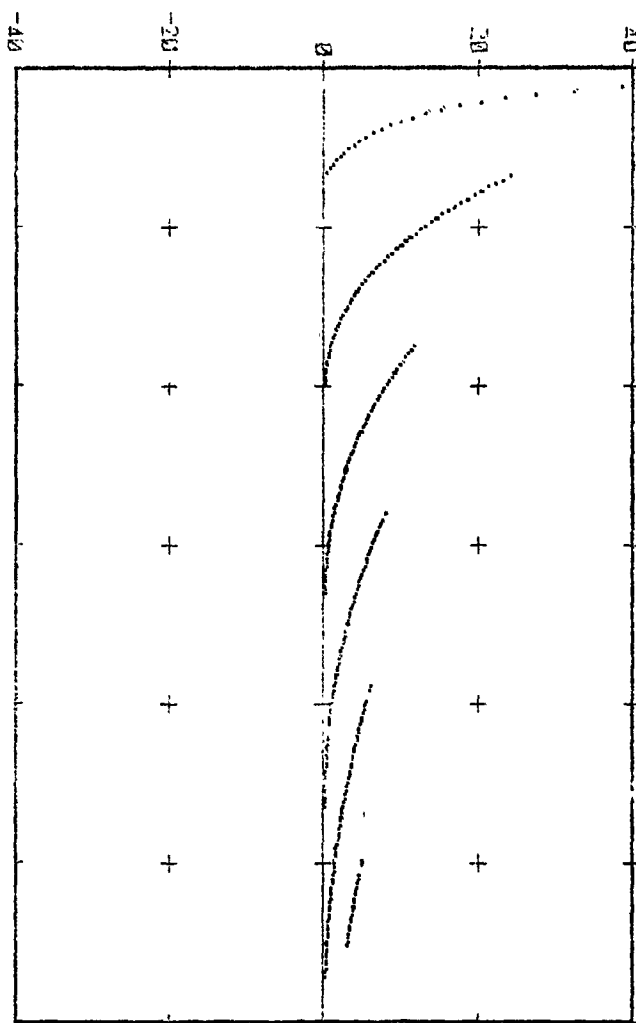
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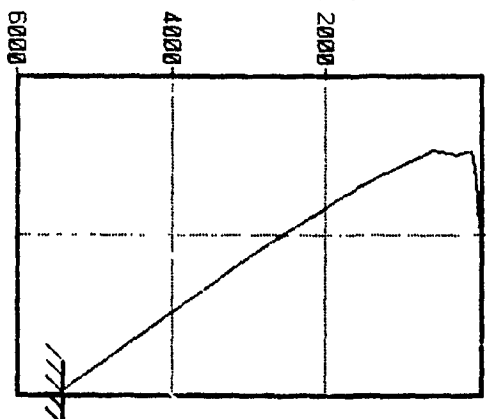
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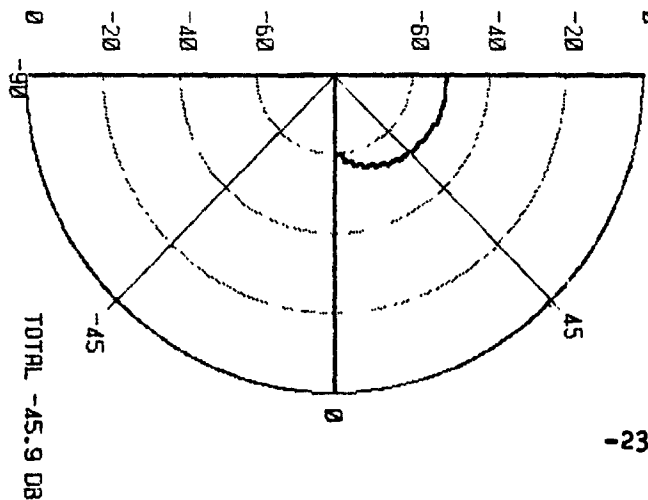
ARRIVAL ANGLE



DEPTH IN METERS

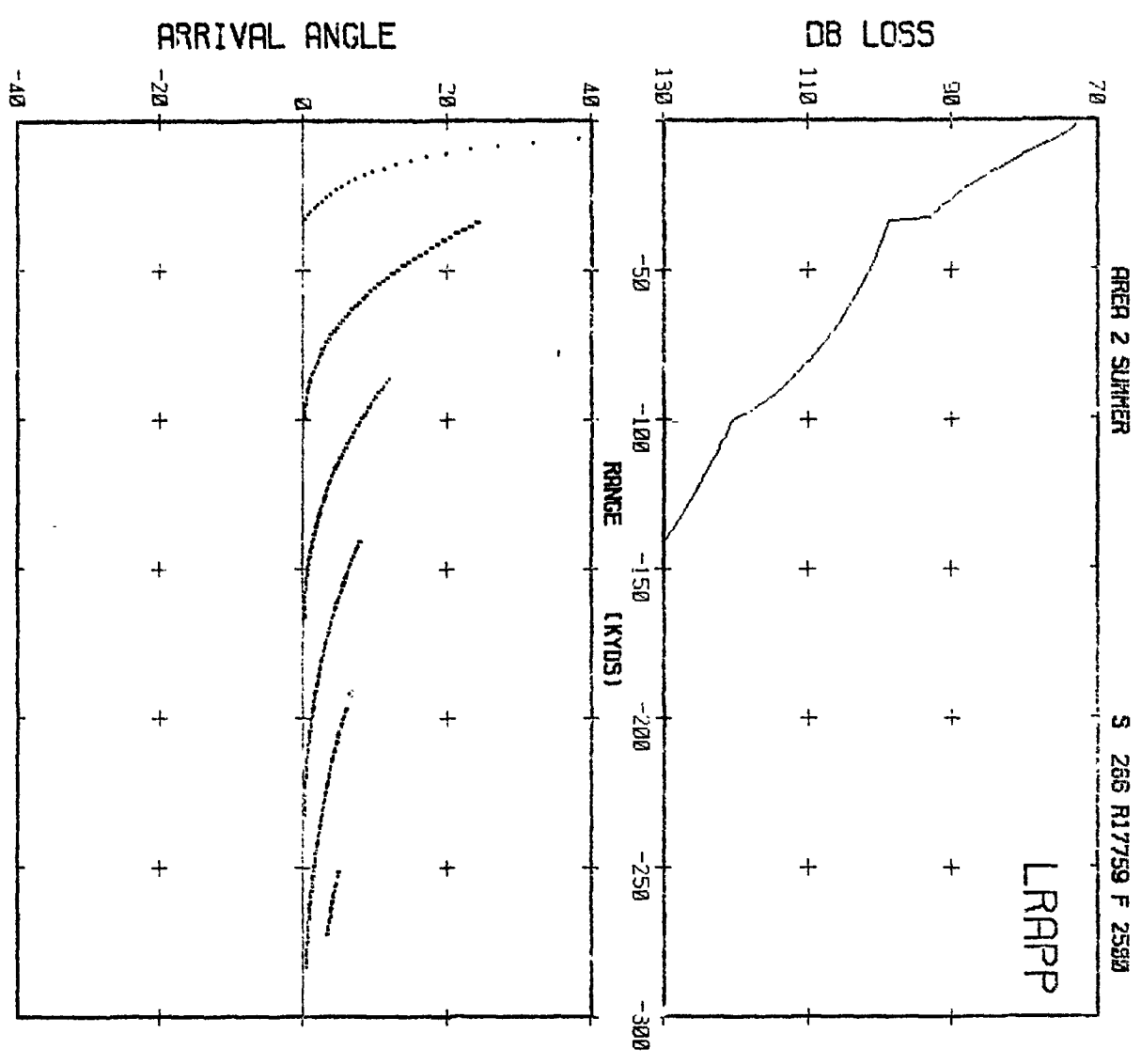


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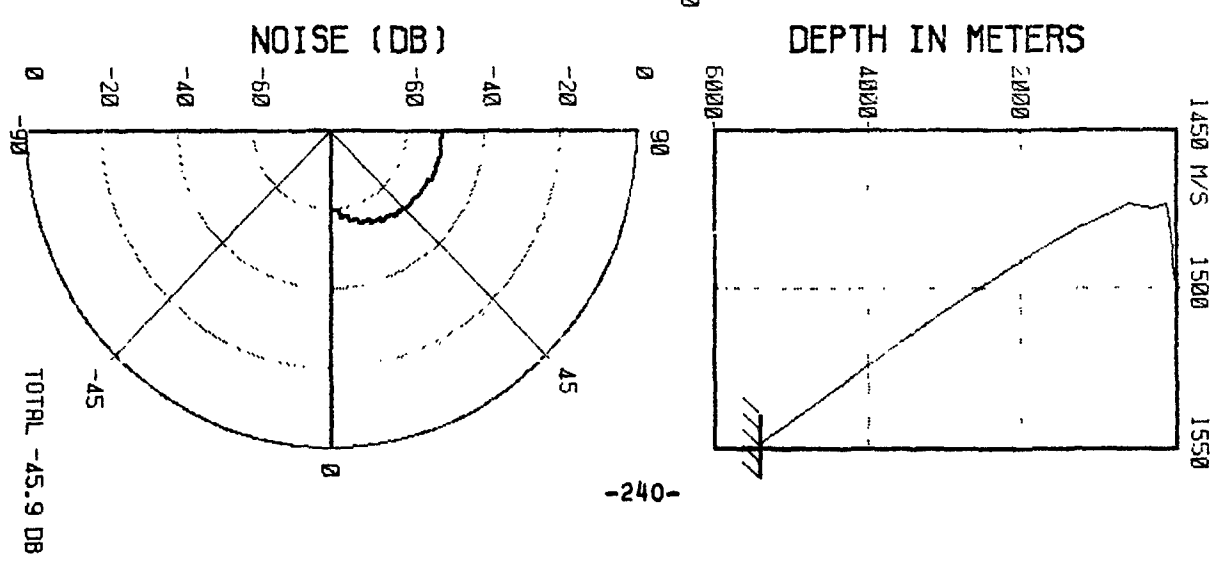


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ARRER 2 SUMMER S 266 R17759 F 2580

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**DEPARTMENT OF THE NAVY**

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**Ref: (a) SECNAVINST 5510.36**

**Encl: (1) List of DECLASSIFIED LRAPP Documents**

1. In accordance with reference (a), a declassification review has been conducted on a number of classified LRAPP documents.
2. The LRAPP documents listed in enclosure (1) have been downgraded to UNCLASSIFIED and have been approved for public release. These documents should be remarked as follows:

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Subj: DECLASSIFICATION OF LONG RANGE ACOUSTIC PROPAGATION PROJECT  
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# Declassified LRAPP Documents

| Report Number  | Personal Author        | Title                                                                                                               | Publication Source (Originator)                                | Pub. Date | Current Availability                     | Class. |
|----------------|------------------------|---------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------|-----------|------------------------------------------|--------|
| Unavailable    | Unavailable            | ACOUSTIC ENVIRONMENTAL SCENARIOS AND PREDICTIONS FOR ASW. VOLUME VII. AREA 3A SUMMER PREDICTIONS FOR PASSIVE SONAR  | Maury Center for Ocean Science                                 | 721001    | AD0910342                                | U      |
| Unavailable    | Unavailable            | ACOUSTIC ENVIRONMENTAL SCENARIOS AND PREDICTIONS FOR ASW. VOLUME VIII. AREA 3B WINTER PREDICTIONS FOR PASSIVE SONAR | Maury Center for Ocean Science                                 | 721001    | AD0910343                                | U      |
| Unavailable    | Unavailable            | ACOUSTIC ENVIRONMENTAL SCENARIOS AND PREDICTIONS FOR ASW. VOLUME IX. AREA 3B SUMMER PREDICTIONS FOR PASSIVE SONAR   | Maury Center for Ocean Science                                 | 721001    | AD0910344                                | U      |
| Unavailable    | Unavailable            | ACOUSTIC ENVIRONMENTAL SCENARIOS AND PREDICTIONS FOR ASW. VOLUME V. AREA 2 SUMMER PREDICTIONS FOR PASSIVE SONAR     | Maury Center for Ocean Science                                 | 721001    | AD0911224                                | U      |
| Unavailable    | Unavailable            | ACOUSTIC ENVIRONMENTAL SCENARIOS AND PREDICTIONS FOR ASW. VOLUME XI. AREA 4A SUMMER PREDICTIONS FOR PASSIVE SONAR   | Maury Center for Ocean Science                                 | 721001    | AD0912560                                | U      |
| Unavailable    | Unavailable            | ACOUSTIC ENVIRONMENTAL SCENARIOS AND PREDICTIONS FOR ASW. VOLUME X. AREA 4A WINTER PREDICTIONS FOR PASSIVE SONAR    | Maury Center for Ocean Science                                 | 721001    | AD0916556                                | U      |
| MC-011 VOL. 14 | Unavailable            | ACOUSTIC ENVIRONMENTAL SCENARIOS AND PREDICTIONS FOR ASW. VOLUME XIV. AREA 5 WINTER PREDICTIONS FOR PASSIVE SONAR   | Maury Center for Ocean Science                                 | 721001    | AD0916557; ND                            | U      |
| MC-011 VOL. 13 | Unavailable            | ACOUSTIC ENVIRONMENTAL SCENARIOS AND PREDICTIONS FOR ASW. VOLUME XIII. AREA 4B SUMMER PREDICTIONS FOR PASSIVE SONAR | Maury Center for Ocean Science                                 | 721001    | AD0916610; ND                            | U      |
| MCR008         | Goodman, R. R., et al. | THE NEAT 1 EXPERIMENT (U)                                                                                           | Maury Center for Ocean Science                                 | 721001    | NS; ND                                   | U      |
| Unavailable    | Cherry, W. R.          | LRAPP BEAMFORMER                                                                                                    | Scripps Institution of Oceanography Marine Physical Laboratory | 721015    | ADA081876                                | U      |
| ONR ACR-186    | Gregory, J. B.         | PROJECT LRAPP TEST BED- TECHNOLOGY USED IN THE DEVELOPMENT OF A DEEP-OCEAN STABLE PLATFORM (U)                      | Office of Naval Research                                       | 721024    | AD 52-3370<br><del>AD 52-3370</del> , ND | U      |
| MC-010         | Unavailable            | CHURCH GABBRO EXERCISE PLAN- LRAPP (U)                                                                              | Maury Center for Ocean Science                                 | 721026    | ND                                       | U      |
| WHOI-72-87     | Daubin, S. C., et al.  | THE ACODAC SYSTEM                                                                                                   | Woods Hole Oceanographic Institution                           | 721101    | AD0756628; ND                            | U      |
| NRLR7516       | Fleming, H. S., et al. | PROJECT NEAT 1 ENVIRONMENTAL DATA REPORT (U) (USNS J.W. GIBBS)                                                      | Naval Research Laboratory                                      | 721129    | NS; ND<br><del>AD 52-3370</del>          | U      |